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Original Contributions.

THE BEHAVIOR OF AMALGAMS.

By W. S. Elliott, D.D.S., Sag Harbor, N. Y.

Judging from Dr. Black's published articles relative to the behavior of amalgams, it would seem that he has not appreciated the well established natural law which underlies and controls these phenomena. Only recently he claimed that oxidation of the metallic compounds was answerable for the observed variations; but while he has discarded this theory as unsatisfactory he still makes no mention of the law of the "persistence, conservatism and correlation of energy," which law should have been seized upon at first as explanatory of the phenomena of aging. The superficial oxidation of the reduced granules surely could not have the remotest influence over the molecular tendency of the mass to assume a condition antithetical to that forced upon it by an excess of the specialized energy.

I referred to this matter in a short paper read before the New Jersey State Society three or four years ago, and although not able to demonstrate the theory, to my mind there could be no other explanation.

In the violence of reducing the ingot to filings or shavings, as the case may be, mechanical energy is expended, which energy is largely conserved and made manifest in the subsequent behavior of the amalgam. The heat generated is for the most part dissipated, but the molecules have assumed a polarized condition—a static energy capable of release whenever the conditions are favorable.

These conditions are quickly obtained when amalgamation takes place. It is herein that this stored—magnetic—energy is further differentiated into normal energy of crystallization. When the

alloy is freshly cut the static energy is at its maximum of possibility and "setting" of the filling is rapidly accomplished. Aging is a gradual diminution of this force and time becomes an element in the change. This is virtually a process of annealing. In ordinary temperatures it may require months—less time under somewhat higher degrees. The minor behaviors of fillings after insertion, whatsoever they be, are still under domination of the law which must be duly appreciated in all its bearings for a full accounting of the phenomena.

BIOTAXIS.

By P. T. Smith, D.D.S., Denver, Colo. Part of a Paper Prepared by Invitation to Be Read Before the Twenty-Fifth Annual Meeting of the New Jersey State Dental Society, July 18-20, 1895.

Life, though considered the manifestation of a force, must be accepted as a combination of homogeneous elements of material and imponderable aspection from the present circumscribed means of demonstration; yet, through these succinct methods of scientific and theoretical conclusions, which are not only acceptable but obligatory, the result is as unavoidable and conclusive as though the hypothesis had been effected by mathematical exactness. While its ubiquitous presence seems unchallenged and supreme, it is cognizant only through a medium of heterogeneous materials and exemplifies numerically in as many individual elements as have been or can be emphasized in the material kingdom, within the scope of our modern comprehensive means. When in the primordial exhibition of material substance through the evolutionary androgynous quality latent in the immaterial transmuted elements, it was imperative that the germinal exude should bear likeness in harmonious difference to the parental source. After which ordeal of difficult parturition had been passed in the course of vital assertion the great proclamation of life had been exemplified, and its onward course was an easy march from thence forward through all varied forms determined in the likeness of some previously inborn combination of architectural harmony. And through this primate principle of the positive elements of evolving in proportion and in kind its prototype in opposite, negative material, which, when united in accordance with the epicurean philosophy with atom to atom, positive to negative, throughout the entire compact sphere, an individual organism of

original authority was set forth, independent unto itself, capable of subsisting and perpetuation upon the subservient elements that are correlated to its composition.

Thus briefly intimating but distant promontories of animate origin along the line of intricate and tedious research, it is befitting, under compulsory brevity, prompted by respect to the occasion, to hasten away from the alluring mirage of heightened passion for charms that kaleidoscope the mental horizon of the ardent metaphysical student in the realms of such bountiful and delightful fruitage, on to the more practical proximate environments of this pabulous realm.

Now we assume to find ourselves at the threshold of organized, individual independents whose life peculiarities of existence, reproduction and perpetual multiplication cheer the expanding delight to a chord of Apollonic charms.

Macary, de Vries, Weisman, Herbert Spencer, Saltus, Leopardi, Schopenhauer and other biogenists, in treating of the subject of organic construction, elaborate upon the material constituency from the theoretical units, biophores, determinants, ids, idioplasms and forms of bio-chemical expression.

The divisions and classifications in the order of their dependent functions subserve an important purpose in the comprehension of the most intricate and interesting of the immaterial constituent elements of living matter.

This vis-plastrix of organic composition is a sovereign factor in all promethean display, though of such subtle yet positive character that its realms are shunned and neglected through fear and dread of incomprehension by those who have wandered by aid of the Diogenesic lamp through the mysterious labyrinths of this obscure primogenial phase, and they have at last failed to hand out to the hungering student that pabulum of mental nourishment for which our souls do most thirst and our lives grow weary and waning under the dismal aureola of savantic despoil.

As a basis for the premises predicated upon such hypothesis thus vouchsafed the conviction arises from the fact of a governing force, which has an imponderable existence.

It is this material which takes precedence in all formative organic action. It is this material which endows the protoplasm with its peculiar difference from other viscous and ropy fluids. It is this

vital force, which goes forward with chartered power, design and primate material for the new object to be created.

The great mass of material substance, and of which scientists have said there are about about sixty-seven distinct primates, is all but an epitome of this regal power, without which not a single atom of material substance could find its way, or exist in organic structure without irritation. Every atom of material substance is but a vehicle—a means to a higher and more noble end of this umpire element.

All living organisms are possessed of dual or chemotaxis properties, the one vis-vitæ or projective, the other material and subjective. There can be no single element or atom of existing material without its factive progenitor. All creation of material elements is but a reflex of the archetypal matrices.

Illustrating more definitely, citation may be made to the union of two cells in the process of amphimixis, which union is effected by the chemotaxis properties of each cell. Biologically considered, the ova cell is positive to the spermatazo cell, which is negative; therefore a current of attraction is established between the two bodies when brought within a zone of their limited powers of action and under conditions favorable for its establishment. Coalescence and fertilization now take place, when partial apathy of the new body follows. At this juncture the sex of the germ is determined by the superior vigor of the vis-vitæ of the ova cell or the spermatazo cell. Supremacy of the former will guarantee an opposite sex and vice versa. Under the oscillating principles of life continued inertia is impossible; immediately the newly-formed germ becomes *negative*, and in that condition attracts immaterial elements in kind and quantity equivalent to the bathmism properties of the germ, tempered by the maternal source of supply. The new germ by this inflow of food now becomes *positive* by the process of ontogony. Now, as the pendulum of oscillating action sweeps across the disk of life, passing the center of apathy on its way to the opposite side, material substances are again needed and attracted by the new body, and only such substances are exercised in the action as are required by the *positive* elements within the zone of new life, now nucleolar in exhibition and alternately demanding material elements as the body is positive, and immaterial elements as it is negative, through the great course of ontogony.

Further and commonplace illustration of the principles of growth by evolution, in which the composition involves all the elements existing within range of comprehension under a geometrical ratio, resulting in all the diversified forms of growth and character that spread out in a great panoramic display of Flora and Fauna in bewildering attraction before the awe-stricken view, may in one simple form be effected by citing to the architect and workmen the design and construction of a great building. First, there has to be a complete conception realized by the author of the building which corresponds to the positive elements in organic composition. Next, the management and direction of each specific workman in conveying the different materials in kind and quantity required and determined by the directing force. Concrete, cement, stone and mortar for the foundation, are all in their turn forced to their respective places in the formation. Mental comprehension of the methods and means required by the architect, also thought, action and force by the workmen in arranging consecutively each material as the necessity of the superstructure and plans ultimately require.

As the material growth of the architectural conception progresses, it can be seen how many different kinds of material there are employed, and at what precise and intelligent time and in what quantity each is selected, and that all passive or subjective materials, as they are put in place, are visible or comprehensible by the physical senses; while the immaterial architectural force is not visible, though nevertheless active and real.

In the formative proteid elements, composing each of the parental cells before and at their coalescence, are found all the biophores bearing potential characteristics of both parents. Here the mental and physical qualities are all aggregated in the germ-cell; by their proliferation determinates are developed from which ids and idioplasm are evolved, by which methods of differentiation all the varied substances in organs of whatever function are proliferated under the directions of the determinants and ids and the law of amphimixis.

OPENING THE ANTRUM.

By M. C. Smith, D.D.S., M.D., Lynn, Mass.

In opening the antrum, the most important thing is first to find out if the opening from the antrum to the anterior nasal fossa be open. If the trouble in the antrum is first discovered by the rhinol-

ogist, it is generally from complications in the nose and the natural opening is closed; if discovered by the dentist, it is generally from dental irritation and the natural opening is not interfered with.

Find the dead tooth that is the source of irritation; open into the pulp-chamber, and wash out with plenty of warm water. Select the largest root-canal, and if it is not big enough enlarge clear into the antrum, and with a hypodermic or a Dunn syringe wash out the antrum. I prefer $H_2 O_2$ full strength. Tip your patient well forward so that the drainage from the antrum will run out the nose. Have a little hot brandy or hypodermic handy, for your patient may collapse, not from pain but from the odor. Seal up the tooth and everything is safe; you have a canular that won't move and is always ready.

If a tooth has to be extracted, any tooth from a cuspid to a third molar, a sharp bur in the right direction will soon open the antrum. Pack the opening with iodoform gauze, as nothing else keeps as sweet in the mouth for so long a time.

I have tried a good many solutions for washing out foul antrums, but if a patient has had $H_2 O_2$ used once and you try anything else, he will tell you either to use $H_2 O_2$ or he will employ some one who will use it.

If the opening into the nose is closed, then a larger opening into the antrum is necessary.

WOODEN TOOTHPICKS.

By H. R. Neeper, D.D.S., Hannibal, Mo.

The cheap wooden toothpicks, such as are found on the counters of the hotels and restaurants and are so generally used, are an abomination. They are clumsy, thick at the "points," and what is worse, are brittle—so much so that when sharpened sufficiently to force particles of food from between closely planted teeth the points are left between the teeth.

We have had cases present such soreness and swelling that at first glance we thought an abscess was forming, but closer examination proved it to be caused by pieces of toothpick broken off in the space. The gums had been torn and punctured and the ragged ends of the wood remaining had caused the serious trouble. We have removed as many as five pieces of pick under these conditions. We have

seen two cases where the entire soft tissues had been torn from between the teeth and the alveolus exposed.

A great many persons, both men and women, have the "toothpick habit" of always sticking a pick in a certain space after each meal, even if they have eaten nothing but clear soup. By the time they have practiced the habit long enough to consult us about that "very sensitive place just above the gums," we find they have crowded the festoon down until the neck of the tooth is exposed, with all the sensitiveness to heat, cold, touch and proneness to decay that accompany this condition.

Our first treatment is to give the patient a lecture on the use and abuse of the toothpick. Then we thoroughly cleanse and remove all foreign matter, touching the sensitive places with carbolic acid. If a second treatment is necessary we touch with nitrate of silver. The patient is directed to put a small pledget of cotton in the space before meals, and after eating to brush and rinse the teeth thoroughly and then to remove the cotton and rinse again. As a rule the annoyance ceases and the gum fills the space in a few days' time.

TOOTHACHE DROPS.—Equal parts of carbolic acid crystallized, camphor, chloral hydrate, menthol and glycerin. Pulverize separately the camphor and chloral, mix, and when liquefied add the menthol, previously triturated, and lastly the carbolic acid and glycerin liquefied together by heat. In packing the tooth cavity with this, none of the fluid should be allowed to ooze over the gums.—*Western Druggist.*

DENTAL INSPECTORS FOR SCHOOLS—The Ontario Board of Health recently adopted the following resolution: "That dental inspectors be appointed by local boards of school trustees to periodically visit schools and examine children's teeth, and that a dental hospital be started in Toronto for the benefit of poor children; and these recommendations be urged upon the attention of the minister of education."—*Medical Mirror.*

INFUENCE OF CONDIMENTS ON DIGESTION.—The action of condiments when taken with food is not definitely understood, though it is generally understood to be beneficial, as promoting digestion. An observer named Gottlieb has recently confirmed this view to some extent, as the result of experiments on rabbits. A cannula being introduced into the pancreatic duct, pepper or mustard was allowed to pass into the stomach, and the secretion of pancreatic juice was found to increase to three or four times the normal quantity. It appeared more watery than usual, but possessed the same digestive powers as ordinarily.—*Phar. Journal.*

which they consider the more important in extending a band beneath the gingiva in crowning, the border of the alveolar process or the peridental membrane. Of those replying the majority consider the peridental membrane the more important, while a few believe that the alveolar process is fully as, if not more, liable to encroachment.

On the whole, judging from statements made by practitioners, there appears to be a shadow of uncertainty as to the exact relative position of these tissues. The gingival line is at the junction of the enamel and cementum. It is the dividing line between the crown and root, and marks the limit crownwise of the attachment of the peridental membrane. In its course it forms several marked curvatures. The average curvature on the mesial surface of the respective teeth, in fractions of an inch, is as follows:

Palmer	".11	.11	.09	.04	.03	.08	.05	.02"
Notation.	1	2	3	4	5	6	7	8
	1	2	3	4	5	6	7	8
	".09	.09	.11	.03	.02	.04	.00	.00"

The curvature on the distal surface is usually somewhat less.

The alveolar process normally envelops the roots of the teeth to within a short distance of the gingival line, varying from one forty-eighth to six forty-eighths of an inch in the young adult. This distance increases somewhat with advancing age.

The borders of the process on the labio-buccal and lingual sides normally present a series of imperfect semicircles, nearly corresponding with the curvature of the gingival line of the several teeth. The borders of the septa, in the anterior part of the mouth, are arched, but this diminishes rapidly from the cuspids backward. Between the molars it presents either a straight line or a slight concavity, so that the highest points of the process are at the angles of these teeth.

The peridental membrane invests the roots of the teeth farther crownwise than the alveolar process, in normal condition investing them as far as the gingival line. In the gingival portion, or that part of the membrane between the gingival line and border of alveolar process, the fibers pass out nearly at right angles with the long axis of the root. Those arising at or near the gingival line, after passing out a little distance, are lost in the fibrous tissue of the

Digests.

WHY AMALGAMS FAIL. An extract from a lecture by Prof. Charles Steel, on "Metals and their Behavior when Alloyed."—Let me impress upon you to use only metals of known degrees of purity. I have frequently called your attention to the remarkable results produced in combining metals—how the union of two *soft* metals will sometimes produce a *stiff, refractory* alloy; how two metals, behaving well in the mouth separately, may, when alloyed, be acted upon most disastrously. A *very small per cent* of some metals will frequently change the entire nature of an alloy. We may doubtless account for the apparently inexplicable failures of good amalgams under some circumstances by the impurity of the mercury used. All native mercury contains lead in varying proportions. It is most difficult to extract this metal entirely from the mercury. Lead, even in minute quantities, exercises a most deleterious effect on amalgam fillings, and indeed on nearly all the finer metals used by the dentist. See to it, then, that the mercury you use in your amalgam is as absolutely pure as it can be obtained. While speaking of mercury, it just here occurs to me that this metal may in another way cause the variable results sometimes obtained from the same alloy. You know that when we undertake to combine the mercury with the alloy, it seems almost impossible to get a perfect solution without using an excess of mercury, which excess is frequently pressed from the mass. It is doubtful whether it is mercury alone which is thus pressed out, but more than likely that it is combined with some portions of the other metals. It has greater affinity for some metals than others, hence brings away different proportions; so if too great an amount of mercury is used, we may seriously injure a nicely adjusted alloy.—*Bi-monthly Bulletin.*

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DENTAL ANATOMY IN ITS RELATION TO CROWN AND BRIDGE WORK. By Raymond J. Wenker, D.D.S., Watertown, Wis. Read before Wisconsin State Dental Society. After having received the appointment by your president, a number of letters were written to specialists, in this and neighboring states, asking

proximate spaces, thereby causing recession of the gingival septa, detachment of the peridental membrane, and resorption of the alveolar septa.

Where a bridge is required, recession has taken place next to the edentulous space, often to such a degree as to expose the gingival line. If the recession is due to a mechanical cause, and the tissues are not impaired, after its removal the gingival septa, at least, will return to their normal position. The question then arises: How far beneath the gingiva should a band be extended?

No matter what the age of the patient, or degree of recession of the investing tissues may be, extend the band beneath the gingiva sufficiently only to subserve the purpose of a band. Extend it an equal distance, at all points, beneath the edge of the gingiva, and a safe distance from the line of attachment of the peridental membrane. Give nature a chance, where conditions are favorable, to reattach the membrane. Give her a chance to replace the gingiva in its normal position.

The great fault lies in extending the band too far beneath the gum line; believing ample extension necessary to prevent ultimate exposure; losing sight of the fact that in so doing you are encroaching upon and even detaching the peridental membrane. The farther it is extended the greater will be the difficulties encountered; the soft tissues will be lacerated, materially impaired, the tooth improperly shaped, and a poor-fitting band the immediate result. However perfect nature may, in a few weeks, conceal this fallacious condition, the very perversion you have endeavored to prevent will be the least that may follow, inflammation, recession and decay.

To obtain the best results, the gingiva should be temporarily dilated and receded before preparing the tooth to receive a band and before setting a crown. This can be readily accomplished by twisting absorbent cotton on a waxed ligature and tying it around the tooth against the gingiva the day before operating. The gingival border of the band should not only be in proper relation to the line of attachment to the membrane, but it should also be dressed to a thin edge, and fit snugly to the tooth on all sides. When the surface of a tooth which is to receive a band cannot be made convex in a line parallel to the border of the gingiva, the band should be burnished to fit this concavity. But if the concavity is in the form of a deep fissure, it should be filled with gold or amalgam.

gums. Farther rootwise the fibers pass over the border of the alveolar process and are continuous with the periosteum.

The line of attachment of the membrane normally corresponds with the curvature of the gingival line, so that in this condition the distance between the line of attachment and the border of the alveolar process is from one forty-eighth to six forty-eighths of an inch, in the young adult. But under certain conditions the membrane may recede or become detached, thereby removing the line of attachment somewhat rootwise. After a careful consideration of these facts, it became evident that special measurements would be necessary to determine this distance under the many varying conditions. Accordingly such measurements were taken from fresh cadavara in the dissecting-room of the Milwaukee Medical College and School of Dentistry. They indicate a variation of from one forty-eighth to three and one-half forty-eighths of an inch.

These examinations show that in the young adult with perfectly formed teeth and healthy gingivæ, the distance is less than in subjects wherein these tissues are defective. In cases of advanced age, where gingival cavities or deposits of serumal calculus were present, the distance appeared greater than where these conditions were absent. They further show that the alveolar process cannot be encroached upon with a band, except by cutting through the gingival portion of the peridental membrane.

The gingivæ, or free margins of the gums, normally invest a narrow portion of the crowns of the teeth, from the gingival line crownwise. The width of the gingivæ, from the edge to the line of attachment, varies in the same mouth, and in different individuals. They are usually widest in youth and diminish as age advances.

The gingival septa, situated between the crowns, are wider than the body. In normal conditions they completely fill the interproximate spaces, from the gingival line to the point of proximate contact. A number of measurements of the width of the gingivæ taken on the labial and buccal surfaces of the teeth, from patients in private practice, show a variation of from two forty-eighths to six forty-eighths of an inch, between the ages of ten and thirty.

The natural order of variation in the relative position of all the investing tissues is frequently modified by some mechanical cause. For example: a tooth requiring an artificial crown usually has lost its contour in a sufficient degree to allow food to pack in the inter-

Having the artificial thus far constructed the next important step is the occlusion. The typical form is such as to make the best possible adaptation of the occlusal surfaces of the teeth; the ridges and cusps fitting into the sulci and fossæ of the opposing teeth; each tooth occluding with two in the opposing jaw, except the lower central incisors and upper third molars.

The relative mesio-distal position of the respective teeth of the upper to those of the lower jaw in the typical occlusion is as follows. Typical occlusion represented by the Palmer notation. Abbreviations used, M. mesial; D. distal.

[1] occludes with [1] and M. ⅓ to ½ of [2].
[2] occludes with D. ½ to ⅔ of [2], and M. ⅓ of [3].
[3] occludes with D. ⅔ of [3], and M. ½ of [4].
[4] occludes with D. ½ of [4], and M. ½ of [5].
[5] occludes with D. ½ of [5], and M. ⅓ of [6].
[6] occludes with D. ⅔ of [6], and M. ⅓ of [7].
[7] occludes with D. ⅔ of [7], and M. ⅓ of [8].
[8] occludes with D. ⅔ of [8].

In exceptional cases it may be necessary to give the artificial an abnormal occlusion, but in general no improvement can be made by deviating from the typical.

While considerable might be added, yet on the whole, if we will be guided in our daily practice by what has been given, fewer cases will be met wherein the imperfection of the artificial is manifested by the perversion of the natural.—*Dental Review, Sept. 1896.*

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CELEBRATION OF THE INTRODUCTION OF ANESTHETICS. October 17, 1846, a venous tumor of the jaw was removed by Dr. Warren without pain, the patient being placed under ether by William T. G. Morton, a Boston dentist, and the next day a fatty tumor was removed; and in a few days, after the performance of some minor operations, Dr. Hayward, in the presence of Dr. H. J. Bigelow and others, amputated the thigh of one Alice Mohan, Morton, as before, administering the ether. "From this date," says Lyman, "the success of anesthesia was placed beyond all doubt. The great discovery was immediately heralded throughout the civilized world, and was everywhere adopted with the utmost enthusiasm."

To properly celebrate the semi-centennial of this great discovery, the Massachusetts General Hospital has issued an invitation to a

The following teeth are more or less difficult to band, by reason of their form at or near their cervices: The upper lateral, when fissured on the lingual surface. The upper first bicuspid, when deeply concave on the mesial and distal surfaces. The upper first molar, when grooved on the distal and lingual surfaces. The upper second molar, when deformed. The lower first bicuspid, having an unusually constricted neck. The lower first molar, being usually flat or concave on the mesial surface. And, when considerable recession of the investing tissues has taken place, the molars are especially difficult to band.

Where the contour of a tooth has been lost for some time, or the points of proximate contact have been flattened by wear, the width of the interproximate spaces is not infrequently reduced, by nature's effort to maintain the contact of the teeth. The normal width of spaces must be restored to protect gingival septa from any unnatural pressure and the proximate surfaces of the adjacent teeth from decay.

The average width is about one-tenth of an inch, the narrowest being between the incisors and cuspids, the widest between the molars, and the intermediate between the bicuspids. But the normal size in a given case should be determined by ascertaining its width between similar teeth and the mesio-distal diameter of a like tooth in the same mouth. To place a crown with too great a mesio-distal diameter in a conspicuous position in the arch would be going to the extreme, although this can be done in the posterior part of the arch, in special cases, with good results. The normal width of the space having been restored to maintain it, the artificial crown must contact firmly with the adjacent teeth and correspond with the typical form as nearly as circumstances will permit.

The points of contact, in the most perfect dentures, are near the occlusal surfaces. In the incisors and cuspids they are in line with the cutting edges, following the curve of the arch. In the bicuspids and molars they are nearly in line with the buccal cusps. The typical point of contact is at a single smooth, round point, such as would be made by the contact of two spherical bodies. If the points of contact of the natural teeth are somewhat removed to the lingual it may be advisable, and even necessary, to make the artificial crown contact accordingly. With this exception the typical contact should always be secured.

ical composition and properties of a new compound, which, for convenience sake, has been called eucain. This new drug, it is stated, is not derived from the vegetable kingdom, but is a laboratory product, and its proper name is methyl-benzoyl-tetramethyl-gamina-oxy-piperidine-carbonicacid-methyal-ester, while the salt in use is the muriate which crystallizes from a watery solution in permanent shiny scales and is soluble in water to the extent of 6 per cent. Furthermore it can be prepared in any quantity, and I believe the intention is to put it upon the market at a cost considerably below that of cocain. Dr. Vinci described eucain as possessing the properties of cocain as a local anesthetic, but as being less toxic and as having no effect upon the pupil.

Having read an extract of the above paper, and realizing, if the statements were accurate, that an important addition had been made to the list of drugs used in ophthalmic practice, Dr. Howe procured a supply from the New York agents and a 5 per cent watery solution was prepared The first day it was used at the Buffalo Eye and Ear Infirmary was in a 5 per cent solution and in the following cases: (1) Removal of a foreign body imbedded in the cornea; (2) removal of granulation after a strabismus operation; (3) the operation of tattooing the cornea. In the foregoing cases the patients complained that the instillation was followed by a smarting, pricking sensation, lasting some minutes, while it was noted that some hyperemia of the conjunctiva was produced, which remained for half an hour or so after the anesthesia passed away. Anesthesia was complete in from five to ten minutes, none of the patients complaining of the least pain during operative manipulation. It was also noted that the pupil did not dilate, but reacted well to light, and that the corneal epithelium showed no tendency to become sodden, as it does after the application of cocain.

The day following Dr. Howe used it with complete success in a strabismus operation, and it has been used for extractions and iridectomies, the patients complaining of no pain whatsoever.

Later a 1 to 2 per cent solution was prepared, and it was found that anesthesia was as readily produced without the pricking sensation which follows the application of the stronger solutions, and these weaker solutions are being employed at the infirmary for the removal of foreign bodies in the eye and other minor operations.

limited number of guests to participate in the ceremonies. It will be noted that nothing in the invitation can be construed into an assertion of priority of use; for the medical public are now well aware that sulphuric ether had been used by inhalation for dentistry and minor surgery by W. E. Clarke and Crawford W. Long, but it was reserved for the Massachusetts General Hospital to have the first capital operation and to make the world hear. She can then with all propriety and conscious pride celebrate the semi-centennial of an event that connects her name indissolubly with the greatest boon that has yet been vouchsafed to man.—*Journal Am. Med. Ass'n, October, 1896.*

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CONGENITAL TEETH. Ballantyne (*Edinburgh Med. Jour.*, May, 1896) delivered a child in 1894 and a few days after birth found that the two lower central incisors were cut. They resembled in their character teeth discolored by the use of iron tonics. Two new central incisors appeared in their place about the seventh month. The mother believed that the earlier pair were absorbed; Ballantyne thinks it more probable that they simply dropped out. The child remains healthy. Buist in 1893 detected the two lower central incisors already cut in a child born at term. The gum was swollen and the teeth loose. Both came out within a month and have not been replaced, although the dentition is otherwise normal. Vargas, of Barcelona, in 1895 examined an infant two days old, suffering from tongue-tie and a projection from the lower gum a little to the right of the middle line. It was cut away under cocain and proved to be an extra-alveolar dental sac containing an incisor with no root. The literature of the subject is reviewed by Ballantyne. Congenital teeth are usually lower incisors, seldom upper incisors, and very rarely molars. Cases like that reported by Vargas and published by Ballantyne undoubtedly represent ectopia of the dental follicle. The majority simply signify premature development of the teeth. Congenital teeth interfere with suckling and are ill-developed; they should therefore be removed. They have little if any relation to the health of the infant.—*British Medical Journal.*

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EUCAIN. By J. C. Clemesha, M.D., M.R.C.S. Eng., L.R.C.P. Lond., Buffalo, N. Y. In a paper before the Hufeland Society, Berlin, April 16, 1896, Dr. Vinci, of Messina, described the chem-

Comparison was made with a 2 per cent solution of cocain and a solution of eucain of the same strength, with the result that the two drugs were of the same value as regards rapidity, duration and intensity of the anesthesia.

Eucain has been proved to be less poisonous than cocain. Animals treated with eucain survived, while animals injected with the same doses of cocain perished. The heart is in no way influenced by it, while it is a well-known fact that dangerous symptoms often arise from the use of cocain. Professor Charteris, of Glasgow, has made comparative experiments with the hydrochlorat of eucain and the hydrochlorat of cocain. Watery solutions of these salts were injected into guinea-pigs, beginning with a small dose and gradually increasing it until the lethel dose was accurately ascertained. It was found, after many experiments, that the toxic dose of eucain per kilo body weight was 0.09 gram, and that the toxic dose of cocain per kilo body weight was 0.068 gram. It was also noticed that the physiological action produced by a given dose of eucain did not follow nearly so rapidly as that which followed a similar dose of cocain, hence it was concluded that the action of eucain was slower in onset and less in intensity. Finally, eucain solutions are stable and permanent and do not decompose, like those of cocain when kept for a time.

Tropacocain, another local anesthetic, seems to be midway between cocain and eucain. It is less toxic than cocain, and on instillation produces slight smarting and some hyperemia of the conjunctiva. Mydriasis is usually absent and the anesthesia is more quickly complete and does not last as long as cocain. Unfortunately its manufacture has been abandoned on account of the difficulty of its preparation.

Eucain has also been employed in dentistry for the extraction of teeth; 3 to 5 minims of a 10 per cent solution, injected into each root to be extracted, is sufficient. It has also been used in laryngology and, in the form of an ointment, in painful skin affections. —*Buffalo Medical Journal, October, 1896.*

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ORAL SURGERY. By Edmund W. Roughton, B. S., M. D. (Lond.), F. R. C. S. Eng. Diseases of the Gums. The mucous membrane of the gums is liable to the same inflammatory affections as that lining the rest of the buccal cavities. These and tumors of

the gum have already been described, but there are some other diseases which require mention.

Hypertrophy of the Gums. This may result from the irritation caused by badly fitting dentures or accumulations of tartar. In such cases the hypertrophy is not great, and it is very seldom that it is necessary to do anything more than remove the cause of irritation. But in children a peculiar variety of this disease is sometimes encountered. It commences at the time that the temporary teeth are being cut—between the ages of six months and two years. The gum increases in size so that eventually the teeth become almost completely hidden from view by large papillomatous or polypoid-looking projections of the same color as the normal gum; although in places they are soft, vascular and spongy-looking, they are mostly firm and fibrous to the touch. The disease usually affects the whole of the alveolar arch in both jaws, but may sometimes be limited to the incisor region. In some cases the overgrowth is sufficiently large to project from the mouth and to bulge out the cheeks. Mastication is considerably hampered.

Microscopic examination proves the growth to be a pure hypertrophy of the gum, chiefly the fibrous portion. In structure it consists of a dense stroma of interlacing fibers, containing much glandular tissue in its interstices and covered on its surface by large and vascular papillæ. The growth appears to start from the periosteum around the necks of the teeth.

The subjects of this disease are often deficient mentally. Sometimes it occurs in several members of the same family.

Treatment. It will not suffice simply to pare away the hypertrophied tissue, as recurrence is pretty sure to follow. This is owing to the disease affecting the sockets of the teeth as well as the gum. To effect a permanent cure it is necessary to remove the alveolar margin as well. The germs of the permanent teeth in the vicinity of the disease must be avoided as far as possible.

Polypus of the gum is the name given to a localized hypertrophy of a portion of gum usually between two teeth. It is produced by the irritation of a rough or carious tooth, tartar, or some portion of an artificial denture. In microscopic structure it resembles gum-tissue. Sometimes the growth encroaches upon the cavity of a carious tooth so as to simulate polypus of the pulp, but it may be distinguished from the latter by its greater sensitiveness and by its

pedicle or base of attachment being between the teeth and not within the carious tooth.

Treatment consists in removing the source of irritation and snipping off the growth with scissors. Its base should be touched with nitrate of silver or with the electric cautery. Recurrence does not take place after effectual removal.

Diseases of the Floor of the Mouth:

Ranula. A ranula is a cyst under the tongue, usually on one side of the frænum. Different views have been held as to the nature of the cyst and its mode of formation. It was formerly thought that it was always the result of dilatation of Wharton's duct. Although some ranulæ may be due to this cause, the majority of them are of a different origin; the shape of the swelling is not that of a dilated duct of Wharton, nor is the submaxillary gland itself swollen as it is in cases of obstruction of the duct by a salivary calculus; moreover, it is sometimes possible to pass a fine probe along the duct for an inch or more by the side of the cyst. Ranula has also been attributed to dilatation of one of the ducts of the sublingual gland, but the shape of the swelling and the condition of the gland itself negative this view. It is now held that the disease is usually due to dilatation of the duct of the Blandin-Nuhn gland, a small mucous gland situated on the under surface of the tongue a little to one side of the middle line. Von Recklinghausen had the opportunity of dissecting a subject in whom there was a ranula, and discovered the remains of the Blandin-Nuhn gland projecting into the cavity of the cyst; he also found that the epithelium lining the ranula was similar to that of the gland.

The disease is nearly always very chronic; it causes no pain and may pass for a long time unnoticed. The only subjective symptoms which it produces are a slight discomfort in mastication and a sense of fullness under the tongue. When the mouth is opened and the tongue turned back a ranula is plainly visible as a smooth bulging swelling of a deep bluish color, tinged with pink, and more or less translucent; large tortuous vessels are often seen coursing upon its surface. It is usually very soft to the touch, but may feel tense; fluctuation can be easily detected.

Treatment usually adopted is to cut out a portion of the cyst-wall with scissors; the fluid thus evacuated is clear and viscid. A simple incision without removal of a portion of the cyst-wall is

usually followed by a reaccumulation of the fluid. Some surgeons prefer to introduce a seton and leave it in position for a week. If the above method fail, a triangular flap of the cyst-wall should be cut and stretched back into the cavity of the cyst; this effectually prevents the cyst from closing before its cavity is filled up. Lastly, the cyst may be completely removed, but the proceeding is a difficult one.

Dermoid Cysts. These in the floor of the mouth are due to the folding in of a portion of the integument during the coalition of the two lateral halves during development, or to imperfect obliteration of the lingual duct. In this manner a cavity lined by skin is formed. The epithelial lining of the cyst wall is usually tough and fibrous; it produces a thick material resembling sebaceous matter and composed of cast off epithelial cells, oil, cholesterine, fatty debris and sometimes hairs. The cyst is situated either in the middle line between the two genio-hyo-glossi muscles, or a little to one side between the genio-hyo-glossus and the mylo-hyoid. It is usually single, but sometimes one is found on each side of the middle line.

Although of congenital origin it is very seldom that dermoid cysts in the floor of the mouth are noticed before the age of fifteen or twenty. The subjective symptoms which they produce are of but slight importance, although more pronounced than those produced by ranula, owing to the more solid nature of the cyst contents; discomfort in eating and speaking and a sense of fullness are usually the only symptoms complained of.

The tumor projects both into the floor of the mouth and in the neck between the chin and the hyoid bone, forming a lump as large as a hen's egg or larger. The surface of the tumor is smooth and its outline rounded or elongated; the mucous membrane covering it is of a yellowish tint, and not translucent as in ranula; pressure produces distinct pitting in some cases. Fluctuation can usually be obtained both inside the mouth and in the neck, but the feeling is much more doughy than in a case of ranula. The diagnosis is usually easily made. In case of doubt it may be cleared up by an exploratory puncture.

Treatment. The cyst may be incised through the mouth, and the cavity packed with gauze after evacuation of the contents. It is, however, more satisfactory to remove the sac completely; if the

tumor be small this can be easily done from within the mouth. If the tumor be a large one it must be removed through an incision below the jaw, either in the middle line of the neck or over the most prominent part of the tumor; the dissection is not usually difficult or dangerous.

Salivary Calculus. A salivary calculus not very uncommonly forms in the duct of the submaxillary gland. In size and shape it somewhat resembles a fragment of slate pencil. It consists of phosphat and carbonat of lime and phosphat of magnesia. It forms very slowly and may remain for years without causing any symptoms; but eventually inflammation is set up, the surrounding tissues become swollen and painful, and the duct more or less completely obstructed. As the result of this obstruction and of inflammation spreading backwards along the duct the submaxillary gland becomes enlarged.

When the interior of the mouth is examined the tongue is found somewhat swollen; the parts between the tongue and the floor of the mouth on the affected side are red, swollen and tender. On palpating beneath the jaw the submaxillary gland is found to be enlarged and hard, but not as a rule tender to the touch. The presence of the symptoms just enumerated should always lead to an examination of the submaxillary duct. On introducing a fine probe a rough and gritty mass will be felt, usually near the orifice, but sometimes further back.

Treatment. The calculus must be removed through an incision made directly over it. Great care should be taken not to break it, as any fragments left behind are difficult to remove and are apt to cause even greater irritation than the original concretion.—*British Journal of Dental Science, October, 1896.*

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FAVUS-LIKE ERUPTION OF THE ORAL MUCOUS MEMBRANE CAUSED BY ASPERGILLUS NIGRESCENS. Dr. Winfield, Brooklyn, before same meeting, gave the history of a case which had been referred to him by Dr. Browning, who had had it under observation for some weeks. A small ulcer had first appeared on the middle line of the roof of the mouth, about half way between the incisors and the soft palate. It was supposed at first to be an ordinary canker sore, giving discomfort only when breadcrusts or other hard substances pressed against it. The patch increased

slowly in size and others formed in the neighborhood. Two weeks after its first appearance the patient consulted Dr. Browning, and, as the patch continued to enlarge, a course of antisyphilitics was given, but without good effect. It was then suspected that the inflammation was due to a local parasite, and bichlorid and other parasiticides were employed without avail. A drawing was shown, revealing a lumpy patch extending from just behind the incisors to within one-fourth of an inch of the soft palate. Cup-shaped elevations on the soft palate appeared on either side of the middle line. A firmly attached membrane, giving rise to hemorrhage when forcibly removed, covered the areas. The color of the recent deposit suggested the sulphur-colored scutala of favus; where it had remained undisturbed it was darker. A few minute ulcers were scattered over the larger patch. With low power the growth was recognized under the microscope as a fungus differing from the achorion. The mycelium network was composed of delicate fibers, bearing perpendicular fructifying hyphæ. Scattered over the field were a number of fruit receptacles and a few spores. The manner of fructifying showed that the fungus did not belong to the oidium, but to the ascomycetous genus. Cultures showed it to be aspergillus nigrescens which had caused the inflammation. Upon applying 25 per cent ethereal solution of pyrozone improvement was immediately noticed. The pseudo-membrane disappeared and new patches ceased forming. After seven weeks' treatment the patient was well.

Literature has failed to show a similar case, although many instances were recorded in which aspergillus has been found in the human ear. The spores were supposed to have been implanted in the mouth through the medium of cheese, strong and moldy varieties of which the patient was very fond of eating.—*Medical Record, October, 1896.*

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NEURO-SOCIOLOGICAL DATA. Dr. Arthur MacDonald, specialist in the Bureau of Education, Washington, D. C., has recently made some investigations that furnish interesting neuro-sociological data, printed in a recent rumber of the *Psychological Review*. The appended table exhibits these data in the most succinct and clearest form:

TABULAR STATEMENT GIVING QUANTITATIVE MEASUREMENTS OF SENSIBILITY IN PERSONS OF DIFFERENT AGES AND CLASSES OF SOCIETY.

No.	Classification of Individuals.	Number of persons.	Ages and average ages.	Average least sensibility to distance (locality) between two points on volar surface of wrists.		Average least sensibility to heat on volar surface of wrists.		Average least sensibility to pain (by pressure) on temporal muscles and on palm of hand.	
				r. wr	l.wr.	r. wr	l.wr.	right.	left.
		1	2	3	4	5	6	7	8
				mm.	mm.	cent.	cent.	kilos.	kilos.
I	Women (highly educated)	23	av. 38	17.3	16.2	2°.1	1°.7	1.253	1.224 (T. muscl.)
II	Young women (wealthy classes)	11	un. 30	13.6	12.4	4.6	4.4	2.9	2.4 (hand)
III	Young men (wealthy classes)	10	un. 30	12.4	12 7	4.4	3.7	4.7	4.2 (hand)
IV	Boston army of unemp.	35	av. 28	16.1	15.6			9.5	9.5 (hand)
V	Washington school children (boys)	526	6–18	16.3	15.5	3.9	3.8		
VI	Washington school children (girls)	551	6–18	14.8	13.8	4.5	3.9		
VII	Boys (parents well-to-do)	205	6–18	16.2	15.2	4.0	3.9		
VIII	Boys (parents poor)	119	6–18	16.6	15.9	4.0	3.7		
IX	Girls (parents well-to-do)	183	6–18	14.3	13.5	3.9	3.5		
X	Girls (parents poor)	133	6–18	14.9	13.8	3.9	3.6		
XI	Boys, before puberty	318	6–14	15.7	14.9	3.9	3.6		
XII	Boys, after puberty	208	15–18	17.2	16.3	4.5	4.2		
XIII	Girls, before puberty	186	6–12	14.5	13.8	4.8	3.8		
XIV	Girls, after puberty	362	13–18	15.1	14.0	4.3	4.0		
XV	Colored children, boys	33	6–19	13.9	13.5	2.0	1.7		
XVI	Colored children, girls	58	6–16	15.2	14.1	2.5	2.4		

Should these results be confirmed by experiments on larger numbers of individuals, the following statements would be probable:

Middle-aged women of the educated classes are much less acute in the sense of locality on wrist, but much more acute to heat than young women of the wealthy classes (Nos. I and II, cols. 2, 3, 4, 5, 6.)

Young men of the wealthy classes are much more sensitive to locality and pain than the men in the Boston army of the unemployed (Nos. III and IV, columns 3, 4, 7, 8).

Young women of the wealthy classes are much less sensitive to locality and heat, but much more sensitive to pain than young men of the wealthy classes (Nos. II and III, columns 3, 4, 5, 6, 7, 8). As to pain, it is true in general that women are more sensitive than men, as shown in a former investigation. But as remarked then, it does not necessarily follow that women cannot endure more pain than men.

Boys are more sensitive to locality and heat before puberty than after. Girls are more sensitive to locality before puberty, but their sensibility to heat is about the same before and after puberty (Nos. XI to XIV, columns 3, 4, 5, 6).

Colored boys are more sensitive to locality and heat than white boys. Colored girls are less sensitive to locality, but more sensitive to heat than white girls (Nos. VI and XVI, columns 3, 4, 5, 6). Colored boys are more sensitive to locality and heat than colored girls (Nos. XV and XVI, columns 3, 4, 5, 6).

The left wrist is more sensitive to locality, heat and pain than the right wrist; only one exception (No. III, columns 3, 4).

These measurements are among the first ever made on the nervous system of school children. Their *practical* value, aside from their scientific, is this: Any pupil 20 per cent above or below these averages for its age should be reported to the family physician; it is doubtful whether such a pupil should be allowed in school; if allowed, he should be separated from the others. There are too many bright pupils with weak bodies. The importance of such facts increases as other facts are discovered.—*Child-Study Monthly, October, 1896.*

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PECULIAR AFFECTION OF THE MUCOUS MEMBRANE OF THE LIPS AND MOUTH. Dr. J. A. Fordyce, New York, read before the American Dermatological Association a paper entitled as above, in which he reported a case of a peculiar mottling of the lips and mucous surface of the cheeks, more noticeable when the parts were put upon the stretch. The condition had existed for two years without subjective symptoms, but the patches had gradually increased in area. The microscope showed a degeneration of the protoplasm of the epithelial cells. The muciparous glands were not involved.

Dr. Morrow said it was an interesting point that the same con-

dition had been found in several members of the patient's family. The nature could be determined only by the microscope.

Dr. White had seen superficial changes suggestive of the case reported.

Dr. Bowen thought there might be a plugging of the glands by the process described, which would account for the yellowish or whitish bodies seen beneath the surface. He had seen bullæ followed by atrophy and attended with the formation of bodies similar to those by plugging up of glandular structures.—*Medical Record, October, 1896.*

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THE ORBICULARIS ORIS AND THE MUSCLES OF EXPRESSION. By W. C. Barrett, M.D., D.D.S., Buffalo, N. Y. Read before the American Dental Association, August 5, 1896. There are a thousand millions of people living upon the earth, and no two of them resemble each other so closely that they cannot be distinguished. The characteristic differences are mainly found in the facial features, and in them the diversities are produced, partially by modifications of the facial and cranial bones, but more especially by variations in the development of the facial muscles, the most expressive of which is the orbicularis oris.

It follows, then, that our principal means for the identification of our friends and acquaintances is in the special development and functional action of this, the most wonderful of all the muscles of the body. When we consider the marvelous diversity of the expressions which the human countenance can assume, when we remember that pleasure, grief, rage, scorn, love, indifference, pride, jealousy, devotion, elation, melancholy, fear, hate, hope, and a hundred other sentiments and passions, with all their modifications, can be clearly and unmistakably expressed by mere contractions and relaxations of these muscles, we begin to comprehend something of the amazing variety of the combinations that may be formed by their union. The more compound a set of muscles the greater the range of its mobility; usually, however, at the expense of its muscular power. Even the features of the stolid, unimpressionable, phlegmatic boor clearly present at times of excitement the workings of his uneducated, untrained mind. When we compare with this the language in which the muscles of the trained pantomimist speak, we get a glimpse of their capabilities.

Nor is it alone upon the voluntary muscular contractions that the actor relies for the portrayal of human emotions. He uses appliances for the mechanical distortion of them, that he may the more readily assume special expressions. It is well known that the tragedian and the comedian introduce material into the mouth for the distention of certain muscles, holding them in permanent distortion in their "make up," that by the action of certain other muscles in combination with them exaggerated expressions may be produced. An invisible hair or thread is used to draw up or down certain facial attachments, thus to produce some special combination. Men so disguise themselves by artificial means that they are not readily recognized by their friends. Criminals, by certain very simple surgical operations, so alter their whole expression that detectives are unable to identify them. Squint, or cross-eye, can be produced or obliterated almost at will. Slight permanent contractions of certain muscles can be induced by simple operative procedures that shall entirely change the expression of the whole face. We, as dentists, know the marvelous modifications that can be brought about through a change in the position of the teeth. We have witnessed the complete mutilation that has been caused by the insertion of an unskillfully constructed artificial denture. I could not, then, select a subject that should more directly appeal to those who are constantly engaged in working upon the human face than to present before them a brief study of one of these expressive organs.

The orbicularis oris is the most complicated and involved of the muscles of the human body, whether we consider it from an antatomical or functional aspect. It is commonly considered a sphincter, but it is very far removed from this class, in that none of its fibers are continuous about the cavity which it surrounds. It is not a simple muscle, but is made up by the intermingling and intercommunicating of a large number of facial muscles. In fact, the distinctive fibers of the orbicularis are comparatively few, passing only across the lips, and not around them. The compression of the mouth is not even produced as in the eye, in which the orbicularis palpebrarum passes nearly around. The mouth cannot be completely pursed up, as with a true sphincter, but it can be drawn together by the combined action of a considerable number of muscles. Its expressiveness is not produced by a simple muscular action, nor can any of the passions be portrayed by any one set

of fibers. The marvelous changes are brought about by combinations made possible through the intercommunication already referred to.

The orbicularis oris is the common meeting ground of all the muscles of facial expression. Fibers from each and every one of them communicate, either primarily or secondarily, with the true orbicular fibers. Even the muscular portion of such a distant one as the occipito-frontalis has its means of communication, and from the clavicle to the coronal suture there is a functional union of all the expressive muscles of the face and head. The mingling of the fibers of all these muscles makes the structure of the orbicularis very complex. Muscles like the depressors and the levators, the filaments of which are arranged at right angles to the margins of the lips, crossing it, give vertical fibers. Those of the buccinator, the risorius, etc., added to the longitudinal fibers of the orbicularis proper, furnish transverse filaments, while a third set run diagonally across, obliquely between the other bundles, from before backward, and from the skin to the internal mucous membrane.

The muscle, as a whole, may be divided into the internal or labial, and the external or facial portions, according to whether the layers are mainly composed of the fibers of the superficial or deep muscles; but no accurate line of demarkation can be drawn, because of the diagonal fibers that interlace. The deep portion has but a restricted attachment to the bone beneath, that of the upper lip having the naso-labial slips, which give the prominence that forms the two vertical ridges near its center, dropping down from the cartilage of the nose, and another in the incisive fossa, while that of the lower lip is merely attached at the incisive fossa on each side. The superficial part of the muscle has no bony attachment whatever, but is held in position by the diverging muscles of which it is composed. This gives extreme mobility to the whole mouth, the lack of bony attachment accentuating it, for if the superficial fibers are strongly contracted and the diagonal ones relaxed, the lips are protruded, while if the deeper layers and the oblique ones are contracted the lips are drawn against the teeth.

The buccinator belongs to the deeper layer, and its fibers decussating or crossing at the angles of the mouth make up a large part of the transverse portion of the orbicularis. It has its origin along the distant line of the alveolar process of both the upper and the

lower laws, and in the pterygo-maxillary ligament behind, many of the fibers from the upper part crossing and forming a part of the orbicularis below, while those of the inferior part cross to be inserted in the upper lip. These decussating fibers are attached to the alveolus as far forward as the margin of the canine fossa, and they should dominate the shape of any artificial denture at this point.

The levator anguli oris, the levator menti, and the quadratus menti, belong to the intermediate layer, while the levator labii proprius, the zygomaticus major and minor, the triangularis menti, the risorius, and the levator labii superioris alæque nasi, with the fibers of the platysma myoides, make up the superficial layer. But certain fibers of nearly all these muscles cross and, accompanied by portions of the deep fascia, penetrate even to bony attachments.

It is not, however, the anatomy of these muscles that so much interests us as their function, and I desire to indicate in what way the expression of the countenance may be affected by malpositions of the teeth, or by unskillful operations on the part of the dentist.

First let us consider the levator labii superioris alæque nasi. The action of this muscle is to raise and slightly evert the inner half of the lip, and at the same time to lift the wing of the nose, and it produces an expression of disgust. It is especially used in sneering. In certain instances in which the central incisors are especially prominent, while the laterals are retracted, we have that peculiarly impudent and deriding aspect that is sometimes called the "squirrel" or "rat-face." If an artificial plate be too prominent beneath it, there may be produced the vacant, idiotic look, induced by the compression of the oblique fibers of the orbicularis oris, and the consequent eversion of the labial edge.

A little nearer the angle of the lips and above the cuspid teeth, but upon the superficial labial surface, lies the levator labii proprius. The action of this muscle is quite complex. With the levator labii superioris alæque nasi it raises the lip, everts it somewhat, and gives a peculiar sneering expression to the countenance. The carnivora in snarling bring this muscle into play, and thus expose the cuspid teeth. In connection with the depressor anguli oris, or triangularis menti, and the orbicularis palpebrarum, it is especially used in crying. The closure of the eye by the contraction of the latter muscle assists in raising the lip, while the triangu-

laris menti draws the mouth into the shape of a parallelogram, and gives a peculiarly lugubrious expression to the face. If the cuspids be unduly prominent, or if a plate lifts the muscle too much, the consequence may be, when the other muscles are at rest, a permanent sneer With the contraction of the orbicularis palpebrarum and the triangularis menti, the face has an expression of extreme sadness.

The buccinator as a muscle of expression acts secondarily. From the peculiar direction of its fibers, when it is in contraction, the muscles of the deep layer are pursed up at the corners of the mouth, while those of the more superficial layer are peculiarly puckered by the consequent drawing of the levator and depressor anguli oris; a deep wrinkle is seen at the angle, while the risorius is placed upon a stretch, and an insincere and mocking appearance is the result. This will be induced when an artificial denture is inserted that has no depression at the canine fossa. The superior decussating fibers of the buccinator are placed upon a stretch, and a peculiarly disagreeable expression thereby induced. The same abnormality of the natural denture, or the same improperly constructed artificial plate that thus unduly distends the buccinator, will act upon the levator anguli oris and intensify the disfigurement. This muscle raises the corner of the mouth, and at the same time draws it inward. When too much distended there must be a continued muscular effort on the part of the triangularis menti to keep the corners of the lips in place, and this results in a painfully strained appearance, and adds to the distortion.

The zygomatici, major and minor, are the muscles most used in smiling, as they draw the angle of the mouth upward and outward. When the zygomaticus major is strongly contracted, it draws together the tissue about the point of its origin, and causes a fullness in front of the malar bone. If now the orbicularis palpebrarum be contracted, the tissue between the origin of the zygomaticus and the outer canthus of the eye is peculiarly wrinkled, producing what are called "crow's feet," a disfigurement which ladies especially most earnestly desire to avoid. If both the zygomatics are placed upon a stretch by undue distention, the mouth is placed upon a perpetual broad grin. If, on the other hand, they are unduly relaxed, the triangularis menti draws down the corners of the mouth and gives the opposite expression.

The risorius has its origin in the masseter, and its action is to draw the corners of the mouth directly outward. It gets its name from the former supposition that it was the muscle of laughter, but all the late anatomists know that this was a mistake. When it is contracted it gives an expression of pain. This is the case in tetanus, and the appearance in that condition is hence called the "risus sardonicus." If the first molar in either the natural or an artificial denture be placed within or without the proper position, the risorius may be caused to give a very peculiar and painful expression.

The platysma myoides is not as much affected by the dentition as some of the other muscles. Yet there are few whose action is more complex. Arising as it does from the deep fascia of the upper part of the chest and neck, it is involved in all the muscular movements of the important pectoralis major, the deltoid, and the sterno-cleido-mastoid. Its long bundles of fibers continue to the border of the jaw, where some of them are inserted. But others cross the lower jaw, and, continuing beneath the triangularis and the quadratus menti, are lost in the orbicularis oris, while the fibers crossing the angle of the mouth are mingled with and lost in the fibers of the levator labii proprius and the levator labii superioris alæque nasi. Hence any unusual exertion of the pectorals and the deltoid exhibits itself in the face. In heavy lifting, the corners of the lip are drawn down, and even the wing of the nose depressed by the strain placed upon the platysma, through its origin in the fascia of the muscles of the arm and chest, and its connection with the orbicularis oris and the levator alæ nasi. It cannot, then, be lost sight of in arranging the teeth, and its action upon the orbicularis oris needs careful study by the artistic dentist.

The depressor anguli oris is of course affected by anything that unduly contracts the levator anguli oris and the zygomatics. If, on the other hand, these muscles are left too lax, the depressor, or the triangularis menti, draws the mouth out of position. If the lower teeth are too prominent, or if a lower artificial denture places these muscles upon a stretch, it may easily be seen that not only will the symmetry and proper expression of the lower lip be destroyed, but that the opposing muscles of the upper lip will draw that also out of place. Especially must the natural expression of the canine fossa be retained, that the triangularis menti may not be distorted, and so the natural expression be entirely lost.

A very disagreeable fullness of the lower lip may be induced if an artificial plate too much distends the quadratus menti, or the depressor labii inferioris, and the levator menti, or levator labii inferioris. If the latter, especially, be strained by undue fullness near the center of the lower lip, it induces a peculiarly haughty, supercilious expression, which may do the wearer of it great injustice. This appearance may be brought about by malposition of the teeth, irrespective of either the natural or the artificial alveolus. If, for instance, the lower edge of an inferior plate be too thick at the incisive fossa, the origin of the levator menti, the point of the chin will be disagreeably drawn up. If now the teeth be placed too far back, the natural fullness of the orbicularis is not preserved, and the decussating fibers of the buccinator and those of the platysma will draw in the margin of the lip, and a peculiarly dogged, obstinate expression will be the consequence.

If a plate be too full at the canine fossa of the upper jaw, the levator anguli oris is distended and the corner of the mouth is raised, while at the same time the descending fibers of the buccinator draw up the inferior angle of the mouth, the risorius is pulled out of position, and a half-sneering, half-weeping expression is seen. At the same time, the zygomatics may be relaxed by the lifting of the lip, and there will be a distortion of the tissues covering the malar bone. Hence, by an artificial denture that has an undue prominence at one point, every expression of the face may be changed, and not a muscle that is connected with the orbicularis oris remain at rest in its natural state.

It would be interesting at this point to take up the comparative muscular anatomy of different orders of animals, and determine the character of each as expressed in the face. There is a peculiar development of the muscles about the mouth of each one, and it is always indicative of their individual or class traits. In the Carnivora, for instance, the levators of the upper lip are largely developed. This gives them the peculiarly savage expression that is so threatening when the anger of the animal is aroused.

In the Rodentia, the prominence of the central incisors brings the levators proprius into prominence, and gives them the impudent, saucy expression that is characteristic of that order. In the leporidæ, or hares, this is modified by partial separation of the superior labial muscles, the so-called "hare-lip."

In the Ungulata, the absence of developed cuspids in many of the families of this order is partially compensated for by the peculiar arrangement of the six incisors, while the corners of the mouth are so far back that the angular muscles are partially inactive. Yet the arrangement is plainly observable in the characteristic expression, this order being, except in the case of certain sub-orders, timid and fearful. The presence or absence of the cuspid changes the whole expression, and the horse, which has canine teeth, may by close and experienced observers be distinguished from the mare, which has none. But this study, although intensely interesting, is foreign to the objects of this paper, and I will not enlarge upon it. I could not, however, resist the impulse to advert to it.

I should be glad also to take up at greater length the question of functional anatomy, but time forbids. I can but superficially present my subject at best. As much time should be spent with each of the muscles whose action is in any way connected with that of the orbicularis oris, if we would thoroughly comprehend the matter. The dentist who constructs artificial teeth has in his keeping the making or marring of the whole human face. If he is not an anatomist, and if at the same time he has no artistic ideas, and if he does not as carefully as the sculptor study the face which he is endeavoring to idealize, he is unworthy a place among artistic dentists. When one sees the perverted, distorted, deformed features of some one who might have a pleasant expression; when children, perhaps, look upon a mother from whose hallowed image all the sweetness, and love, and patience, and tenderness have been eliminated by the cursed work of some pretender to knowledge of which he is in utter ignorance; when we reflect upon the blasted lives of young women whose future perhaps is wrecked through their being made repulsive to one who should have been attracted; when we observe upon the streets, in society, at home and abroad, the horrible caricatures of the human face divine that are the result of the reprehensible ignorance of pretended dentists, one wonders whether after all our profession as a whole brings more of good than evil upon mankind. When we think of what it might be, and of what it is, we are led to weep at the present status of the art of dentistry, and are consoled only by the remembrance that amid all the Cheap Johns who are violently struggling for a bare existence there are a few who do honor to their profession by conscientious and intelligent work, and

who are rewarded, as such men always are, not only with the plaudits of a judicious world, but by the more substantial benefits of well-paid labors.—*Dental Cosmos, October, 1896.*

* * *

INTERESTING EXPERIENCE. By A. Rose, L.D.S., Peterborough, Ont. I noticed in a recent number of this journal an experience of a peculiar nature in connection with an aluminum crown set with amalgam. The circumstances there described so nearly accorded with an experience of my own that I feel encouraged to report mine also. Having been requested by a lady patient to do something to save the root of a lower right second bicuspid from the necessity of extraction, and as quickly and cheaply as possible, I thought of making a crown of a piece of aluminum tubing about the diameter of the root, trimmed and fitted to it and filled, and cusps built on with amalgam. This I did in a short time, and sent the patient away much pleased with my efforts to replace her lost grinder. You may imagine my surprise when the lady returned next morning with a few scraps of something that looked like acid-eaten iron, about the shape of the piece of tubing used to form the crown, but ready to crumble to pieces in her hand. She said a few minutes after she left the office she felt it getting hot and a boiling sensation about the gum, and then the filling seemed to boil and crumble away out of the crown. I concluded that some chemical action took place on the union of amalgam and aluminum in the saliva around them, but do not yet think I clearly understand the reason for the occurrence. I set to work again and with tubing, hammer and anvil soon fitted another band to the root, but this time filled it with oxy-phosphat, and find it giving good service and no apparent inclination to give way at any point. Can any one give a satisfactory explanation of the destructive agency in the first case? If so, I, for one, will be pleased to consider it, and thank him for his trouble.—*Dominion Dental Journal, October, 1896.*

* * *

NOTE UPON THE INVESTIGATION OF URIC ACID IN SALIVARY TARTAR IN THE COURSE OF PYORRHEA ALVEOLARIS (ARTHRO-DENTAL INFECTIOUS GINGIVITIS). By Dr. Galippe. Like all grave maladies whose etiology is imperfectly understood and whose treatment is slow and difficult, pyorrhea alveolaris has received a considerable number of appella-

tions, and its etiology has been attributed to the most diverse pathological influences.

I was not a little surprised on reading, in 1894, in an American selection, that the etiology of pyorrhea alveolaris must be always attributed to gout. The author of this assertion based himself upon the invariable presence of uric acid or of urates in salivary tartar, as well as in the deposits forming incrustation at the extremity of teeth which have dropped out, or have been extracted in the course of this disease.

I have made it my task to examine this assertion, with the help of two of my collaborators, MM. Brun et Gaillard. Starting with this fact, that if uric acid really exists in salivary tartar, or at the extremities of the roots, it ought to be found there in a relatively feeble quantity, our researches were carried out with the most minute care and the greatest precaution. The American author does not say by what means he has been able to verify the presence of the uric acid. We have not, perhaps, followed the same path in our investigations as he took. We have adopted the most common-sense classic methods, those which are ordinarily followed when the presence of uric acid has to be determined in concretions.

These methods are of two kinds: I. If we treat the concretions inclosing the finely pulverized uric acid by azotic acid, then evaporate the excess of uric acid, and add to the residue a drop of diluted liquid ammonia, we obtain immediately the rose-purple coloration of murexide. II. If we treat the same concretions by an alkaline solution of potassium, the uric acid becomes dissolved, giving place to a formation of soluble urate of potassium. To the filtered liquid is added hydrochloric acid, which produces a precipitate of uric acid, easily to be recognized on examination with the microscope.

1. With these methods we first made some trials upon saliva; our results were negative. 2. Upon ten samples of fresh tartar we also obtained negative results. 3. Upon forty teeth, studied separately, and chosen from patients affected with pyorrhea alveolaris, the tartar was first detached and analyzed, thereupon the extremities of the roots were sawed off and examined after pulverization. All the results were negative.

The salivary tartar taken from several series of teeth (9, 6 and 4) did not reveal the presence of uric acid; the combined roots of these same series did not afford better results.

In the face of these persistent negative results we asked ourselves, after the first three or four trials, if the presence of the organic and mineral matter in the salivary tartar did not prevent the reactions. We therefore instituted experiments of control, which were subsequently made after each examination of tartar or of root. 1. To saliva we added extremely weak quantities of uric acid, and these infinitesimal proportions gave us very good reactions. 2. The same very feeble quantities of uric acid were added to the fresh salivary tartar, also to the dry salivary tartar, and likewise to the finely pulverized extremities of the roots of the teeth. In all the cases we were able to demonstrate clearly the presence of the added uric acid.

We therefore believe that we are right in concluding: 1. That the experiments were made under conditions and with sufficient care to reveal the presence of even very small quantities of uric acid. 2. That, if we have not demonstrated the presence of this acid, either in the saliva or in the fresh and dry tartar, or in the extremities of the roots of the teeth, it is because there was not the least trace present in the samples we examined, or because it was not possible to disclose it by the methods which we employed.

We accept the similarity which it has been sought to establish between the salivary concretions and the urinary calculus. The etiology is the same, and in the one case as in the other we have before us a microbian process. It is, however, pushing the resemblance too far to say that the uric acid is to be found in all the concretions.

The chemical composition of salivary tartar closely approaches to these calcareous concretions, which are found in all the osseous parts of the body and in the bladder, every time that a process of the purely parasitical order comes into action.

It seems to us that the exclusively gouty origin of pyorrhea alveolaris ought not to be accepted, although it may have been established for a long time that the arthritics and rheumatics offer a predisposed field for the development of this disease, in which, as we have demonstrated with M. Malassez, the infectious element plays such a preponderating part.

After a decade the infectious character attributed by us to pyorrhea alveolaris comes back to us from America as a discovery, without the least mention being made of the researches of M. Malassez and my own. This is too much in the order of things for us

to think of complaining.—*Journal des Connaissances Medicales*, quoted in *L'Odontologie.*

* * *

USE OF THE ALCOHOL LAMP. By W. H. Brown, D.D.S., Nashville, Tenn. Impure alcohol is not, by any means, the only thing which causes trouble during the process of making contour fillings, yet it is true that impure alcohol is detrimental to good gold work. By following the instructions given below, I believe you will have less trouble with the lamp.

First, see that your lamp is perfectly clean, both inside and around the top of burner. Be sure there is no wax or any kind of chemical dropped from your instruments and lodged on or around the wick. Next see that the wick is freshly trimmed and no crust left from previous burning. After you are satisfied that your lamp is perfectly clean, inside and out, fill up with pure alcohol, and never attempt to work with a half filled lamp, for by so doing the blaze will consume so much wick, causing a certain amount of smoke, which renders the blaze unfit for annealing purposes the same as impure alcohol.

Another thing which should not be overlooked is, after lighting your lamp do not use the blaze too soon; give it time to heat and burn off all impurities and become a blue blaze before annealing your gold. While waiting for this it is a good idea to select the pluggers you expect to employ and warm them slightly at the points. This not only prevents the cold instrument from chilling the gold, but burns off all the impurities and foreign substance that may have collected in the serrations.

Always be careful not to blow your breath against the filling or use the chip blower at any time during the operation. Either one will cause a dampness which will prevent the next piece of gold from adhering properly.—*Ohio Dental Journal, October, 1896.*

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NODULE ON APEX OF ROOT. By H. L. Ambler, M.D., D.D.S., Cleveland, Ohio. Read before American Dental Association, August, 1896. A lady, aged about thirty, presented for treatment of a chronic abscess of right superior lateral incisor. Upon examination with a probe it was found that the labial wall of bone at the apex of the root had been destroyed. With the intention of scraping the apex and breaking up the sac, a small right-angled

from that at Dayton that I was at a loss for a satisfactory explanation. In some there was so much pain in the application of the current that the operation could not be called a success so far as being painless was concerned. When the appliances were perfectly quiet the patient would from time to time experience sudden and severe shocks of pain, much as if the current had been broken.

It was also shown in the paper that to produce cataphoresis painlessly the current pressure, when supplied by either a dynamo or battery, must be steadily maintained. It will not do to suddenly raise or lower the voltage on the main of the street current. Neither is it allowable to cut in or out a cell or a number of cells of a battery. By my experience with the various currents I was led to suspect that in those instances where there was this periodic pain to the patient there must be a sudden and wide variation in the voltage, although this did not show itself upon the voltmeter by more than a slight movement of the index finger. Subsequent observation and experimentation has practically substantiated the above belief, and I feel safe in saying that in those instances where operators are using the 110 volt current with intermittent pain to the patient, the anode being held quiet, that it is due to a fluctuation in the pressure of the main current. The fluctuation is usually a lowering of the voltage and so quickly done that it is not noticeable on the ordinary voltmeters in use. It is not a drop of a few volts but of quite a number, possibly of twenty or thirty at times.

The Edison constant current, the most practical form of commercial current to use for cataphoresis, is furnished us at a pressure of about 110 volts. This current, as is well known, is produced by the rotation of an armature between the poles of an electro-magnet. In order to maintain 110 volts the armature must rotate at a given speed, the armature must have a certain number of windings and there must be a certain magnetic flux. If any of the above three conditions should vary there would be a variation in the voltage of the outgoing current. It is by means of the last named that the voltage is most commonly controlled, or rather maintained, because it can be done by means of the rheostat. It is not practical to vary the speed of the engine, nor is it practical to change the windings of the dynamo, but the magnetism of the field can be easily varied by an instrument in common use, the rheostat. In a large plant where the manufacture and consumption of current is large, as for instance

scoop was introduced and passed easily over and around the apex. Upon withdrawing it a small nodule of dentine or enamel about the size of an ordinary pinhead was brought away. The abscess was treated with pyrozone four times at intervals of three days, when the discharge ceased. Evidently the pulp had been dead for a long time, and the canal filled, as there were large mesial and distal fillings. The case was lost sight of for a year, and in the meantime she had this lateral, and also the right central, which was badly carious, extracted, and is now wearing an artificial denture.

The special interest attached to the case is the fact of finding a nodule at the *apex* of a root, especially of a *single*-rooted tooth.

Enamel nodules are small excrescences, apparently consisting of enamel, occasionally met with upon the roots of teeth. They are generally found upon multiple-rooted teeth, situated a little below the neck and often at the junction of the roots. On section they are found to consist of a cone of dentine covered with a rather thick layer of enamel, and often connected with the crown by enamel. Wedl says that "these nodules are the result of localized continuations of the development of the enamel between the already developed basal portion of the roots, and are produced by the strip of the enamel organ which has persisted longer than the rest." Smale shows the cut of one of these nodules on the apex of a *molar* root, and says they may be accounted for by a budding from the tissues concerned in the process of the formation of the tooth. Tomes shows a cut of a nodule situated on the *neck* of a *single-rooted* superior cuspid.—*Ohio Dental Journal, October, 1896.*

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EDISON CURRENT IN CATAPHORESIS. By L. E. Custer, B.S., D.D.S., Dayton, O. In a former paper on cataphoresis read before the Mississippi Valley Dental Society, it was stated that the 110 volt Edison current was as good for cataphoric purposes as a battery current, and it was recommended on account of the convenience. That statement was made from the practical experience in the use of the current as supplied in Dayton, O. Since that time the writer has had occasion to operate with a variety of commercial currents throughout the country. In Marshalltown, Iowa, the 500 volt current was used, but in all the other instances the 110 volt Edison. The experience with some of the currents was so different

so far as steady pressure is concerned, is the gas engine. While this is especially adapted for small plants, the smaller the engine the more unsteady is the electrical output.

Another cause of variation in voltage is found where the dentist does not get his current direct from the main line or is quite near some person who is using current from the same wires periodically. In many large buildings the wires enter the basement and ramify throughout the entire structure, giving off branches to each floor and these in turn to the different suites. Perhaps the elevators are operated from the same wires. It is a commonly observed fact that if a lamp is steadily burning and another near by be turned on, if the conductors are small, the first lamp is seen to slightly dim. The same thing occurs when the operator is producing cataphoresis and a neighbor turns on or shuts off current for his engine, lamp or oven.

The current used for lighting is always consumed at a steady rate and mostly at night, but that for motors is periodic, and it is unfortunate that this is during the daytime and when the dentist operates his cataphoric appliance. For this reason it is also important that the dentist secure his current from main lines if possible.

Occasionally the Edison wires are crossed by the trolley. If there are no grounds on the dentist's line, nothing further than a small raise in the voltage will be noticeable and but a slight shock is felt by the patient, but should his wires be in contact with a water or gas pipe the results would be more serious. On a well-kept system the heavy voltage is immediately dissipated in the many outlets and nothing serious will result.

The practical conclusions to be drawn are these. The 110 volt Edison current may be used satisfactorily and with as good results as a battery current where it is furnished by a well equipped and not overloaded plant. The dentist should connect direct to the main line whenever possible and not use current for other purposes while producing cataphoresis. He should not be on the same circuit with large motors which operate intermittently and should see that his wiring is perfectly insulated and not in danger of a ground.—*Ohio Dental Journal, October, 1896.*

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COFFEE AS A DESTROYER OF MICROBES. Recently Mr. Luderitz has published his experiments with coffee relative to

a city plant, where a number of dynamos are feeding into common mains and where the output is always large, the cutting in or out of current for a building, or perhaps for a whole square, is scarcely noticeable, and the average voltage is easily and carefully maintained, whereas in small plants which supply but a building, or but a few at most, often with imperfect regulators and inefficient attendance, the variation in voltage is much more marked. The voltage of a city plant may vary 5 or 8 volts during the day, but this variation has been going on very gradually. But in the smaller plants the variation comes on instantly.

When a dynamo has once been placed in operation, its armature is expected to revolve at a certain speed at all times in order to produce and maintain a steady voltage. An increase in the armature revolutions raises the voltage and a decrease lowers the voltage. It is necessary to increase the belt pull on the armature as the output of current is increased. It is not simply a matter of revolving the weight of the armature on its axis against the air friction and the friction of its bearings, but as the load or output increases magnetism also increases and the armature becomes a dead weight, like revolving a fan in a vessel of water, and as the output still further increases the water theoretically begins to thicken. Now this is a dead weight and if the belt pull were to suddenly cease, the armature, whose momentum is neutralized by the magnetism, would stop. If it would not entirely stop, it would at least lessen its speed very considerably. This all occurs so quickly that the eye cannot perceive it and the ordinary voltmeter index has not had time to record it. All that is noticeable to the eye is a slight movement of the index finger. Now if this current were used for cataphoresis at the time of this sudden drop of the voltage, which is not measured on the meter, it is very distinctly felt by the patient, because it would be practically the same thing as lifting the anode from the tooth. In a large plant where a number of dynamos are feeding into the same lines, the slipping of a belt on one is scarcely noticeable, but in a small plant this is certainly the case.

A frequent cause of the variation of voltage in small plants is that the engines and dynamos are often too small for the work put upon them. No engine can run smoothly when it is always put to its highest limit. It is the one which has reserve that can be regulated to meet the varying demands. A still less satisfactory source,

The following tells the condition of the dental organs having the cyst:

Decayed teeth with gangrenous pulp, 96 cases . . . . 91.4 per cent
Teeth otherwise injured . . . . . 9 cases . . . . 8.6 per cent

The foregoing statistics demonstrate that the greater number of dental cysts occur between the ages of 21 and 30, and further, that the older the patient the less likelihood of being affected with this form of dental trouble.

With reference to the sex of the patient the above cases would show that the cysts are more likely and frequent among men than women; however, the difference in the percentage is but slight.

That there are a greater number of cysts in the upper jaw than in the lower, can possibly be explained as resulting from the fact that the hollow superior maxilla affords a more exposed condition to such teeth as penetrate the antrum, while the solid or compact osseous structure of the lower jaw acts as a safeguard.

It is worthy of notice in observing the 96 cases, that 52 cysts were on the right side of the face, while only 44 appeared on the left side.—Translated by Dr. B. J. Cigrand from *Deutsche Monatsschrift fuer Zahnheilkunde, October, 1896.*

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CATAPHORESIS IN DENTAL PRACTICE. By Dr. E. Grosheintz, Basel. The word cataphoresis (from the Greek, meaning to carry away or wash along) suggests to our mind a picture of a river carrying with it floating material. The physicist defines cataphoresis as that property or power of electricity to conduct or exchange from the positive to the negative pole a fluid through a porous body. If we conduct a constant current through a tissue or body we can experience the fluid passing from the positive pole (anode) in the direction of the negative pole (kathode); and this phenomenon we term cataphoresis.

The physicians understand by the word the forcing of medicine into the body by means of a current of electricity. Prof. W. J. Morton has employed a very satisfactory expression for this process in this phrase: "Electric—medicamental—diffusion." Cataphoresis is a purely mechanical process and in this particular differs from the chemical process accompanying electrolysis. And it is possible for electrolysis and cataphoresis to act in conjunction, and it is difficult,

dietetic or food value; he has also tested its behavior toward pathogenic and non-pathogenic bacteria. He reports that he found all the bacteria experimented on to be materially retarded in their development in nutritive gelatine by relatively small quantities of aqueous infusion of coffee (10 g. coffee to 90 g. water); but the power of resistance manifested by the different species varied. Caffein seemed to possess some antibacterial power, but it was so slight that its influence in the action of infusion must be inconsiderable. It is rather to the empyreumatic substances formed in the roasting of the coffee, which have been termed collectively "caffeon," that Mr. Luderitz attributed the essential antibacterial action. In further commenting on this power of coffee he notes that fresh raw meat, inclosed in the powder of roasted coffee, can be dried without the least appearance of putridity. The facts here adduced are of interest in connection with the experience that finely powdered coffee mixed with iodoform destroys the nauseous odor of that drug, and does so without abridging the aseptivity of iodoform.—Translated by Dr. B. J. Cigrand from *Pharmaceutisches Centralblatt.*

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STATISTICS CONCERNING DENTAL CYSTS. By Dr. Julius Witzel, dental surgeon at the University of Marburg. In the following record of dental cysts I have made observations on 105 cases, which give the following results:

Between the ages of	8–12	years	. . . . .	4	cases
" " "	13–20	"	. . . . .	14	"
" " "	21–30	"	. . . . .	51	"
" " "	31–40	"	. . . . .	23	"
" " "	41–50	"	. . . . .	8	"
" " "	51–60	"	. . . . .	3	"
" " "	61–70	"	. . . . .	2	"

Of these 105 cases I found:

In males 59 cases or		. . . . .	56.2 per cent
In females 46 cases or		. . . . .	43.8 "
Superior maxilla	males	. . . . .	44 "
	females	. . . . .	32 "
Inferior maxilla	males	. . . . .	15 "
	females	. . . . .	14 "

This shows 72.4 per cent in upper jaw and 27.6 per cent in lower jaw.

apex, reflected upon the root from that lining the alveolus—becomes congested and, unless early interference is had, suppuration supervenes. First, the pericementum becomes distended and partially detached from the root, pus generates in the sac thus formed and becomes a foreign element, which must be thrown off, and, if influenced by gravity only, would discharge by the shortest route; but it is directed therefrom by the anatomical structure of the environments. Pus once formed and the periosteal sac containing it broken, it must then find its way through the bony structure until it reaches the periosteum covering the outside of the maxilla, when it becomes again arrested by this tough, elastic membrane, causing much distension and inflammation of the surrounding tissues. The pressure of the constantly increasing generation of gas, from decomposition of the pulp and pus-secretion from the sac thus formed, causes a thinning of the soft structures until an opening is established, when the trouble subsides in a few days, leaving a permanent fistula unless interfered with.

Whatever the treatment—extraction, which is seldom necessary, or cure by other means—morbid changes have already taken place which will remain through life. The periosteum becomes thickened, the cementum nodular, if inflammation has preceded the death of the pulp, and the bony structure has become somewhat thickened.

The color of a tooth is not altered by the death of the pulp if the debris is all removed and it is properly filled before the discoloration takes place. It remains a useful and ornamental part of the human organism, and if anything it is more adherent and firmly fixed in its socket than if the pulp were alive.

The most prominent symptom of the partial death or approaching death of the pulp is a not well-localized, intense pain on the affected side of the jaw, described often as neuralgia, the pain intermittent in character, sometimes described as thumping or hammering, increased in intensity when in the reclining position.

It is often difficult to determine in the early stages the tooth thus affected, and most frequently the pain is described by the patient to be in some other tooth than the one causing the trouble. I was called to see a patient a short time since who had a dentist to extract the upper second bicuspid, which was perfectly sound, only to get a few moments' relief, probably from loss of blood. Shortly afterward the attack returned with renewed violence. He sent for

or rather impossible, to determine just how great a function each exercises.

The earliest instance in which cataphoresis was employed in the practice of medicine seems to have been in France. As early as 1833 the introduction of tinct. of iodin was practiced, and for upwards of twenty years the French specialists recommended it as productive of good results in the treatment of several internal disorders. The learned scientists of the several continents have from time to time studiously occupied themselves in the investigation of cataphoretic experiments without establishing for it a specific purpose in general practice. Only recently the Americans have, under the great electrician, Edison, taken up the oft neglected study of electricity, and now promise many positive results.

Dr. William J. Morton, professor of nervous diseases and electrotherapeutics in New York, is the son of the renowned Dr. Morton, the discoverer of etherial anesthesia; and the subject of cataphoresis is receiving the special research of the young Dr. Morton. He is studying it relative to its worth in the science of dental surgery. We are indebted to him for having substituted cataphoretic anesthesia in the place of cocain; and his success with guaiacol-cocain is deserving of considerable notice. On May 12, 1892, Dr. Westlake, of Elizabeth, New York, in an essay before the State Dental Society said: "I am convinced that the problem of obtunding sensitive dentine will be solved through the agency of the electro-medication or cataphoresis." I have experimented considerably with electricity, relative to discovering the latent properties which might prove of service to our profession, and I am certain of valuable aid coming from its further employment. I use it in bleaching teeth; in disinfecting root-canals; in painless extirpation of the pulp; in extracting teeth; in the treatment of pericementitis, and in alveolar pyorrhea. —Translated by Dr. B. J. Cigrand from *Schweizerische Vierteljahrsschrift fuer Zahnheilkunde, September, 1896.*

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PATHOLOGY AND THERAPEUTICS OF DEAD TEETH. By Dr. G. H. Claude. Read at Union Meeting of Maryland State Dental Association and Washington City Dental Society. The author defined a tooth as dead when the pulp had been destroyed. Respecting the morbid anatomy of such cases, he said: When a pulp dies, the pericementum—that portion of the periosteum at the root

his physician and was laid up in bed, resting only moments at a time while under the influence of anodynes. After being under anodyne and tonic treatment for three days he sent for me. Upon examination I could see no fillings or cavities in his teeth. The upper right lateral incisor appeared a little dull in color, and had a slight fracture of enamel near the cutting-edge. A year previous to this I had examined his teeth, and he reminded me that I had told him then it looked like a dead tooth. On feeling in the roof of his mouth just above the root of this tooth, I found it exquisitely sensitive to pressure, and detected some distension, softening, and fluctuation. I brought my dental engine to his house and drilled through the palatal surface into the pulp-canal, and pus flowed freely through the openings. His relief was immediate. After two weeks, when the discharge had ceased, I filled the root, with no subsequent trouble. This pulp was devitalized by a blow when he was a child, and, judging from the size of the apical foramen, before the tooth was thoroughly developed.

Cases of this sort are of too frequent occurrence where good teeth are extracted on the demand of the patient, without the dentist using proper discrimination.

When in doubt a delay of a few days or hours may establish beyond peradventure the diagnosis, and teeth may be saved which otherwise are ruthlessly extracted. Patients will nearly always consent to put up with the suffering for a time if alleviated by remedies. A careful examination will always raise a suspicion of the offending tooth, and often settle the diagnosis from the pain on percussion, looseness, insensibility at cervical margin, and response sometimes to heat and cold. A partially dead pulp will respond to heat and cold even more actively than a tooth in a normal condition. There may be no pain on cold being applied, but the pain will be intensified by the application of heat. This is a very important point in a discriminating diagnosis.

The pulp once dead, the cavity should be made large enough to afford access to all of the roots, and they should be cleaned out thoroughly to the apex, disinfected and filled.

His method of filling the pulp-canal is that described by Dr. N. S. Shields—filling with gold or other substance that will not absorb moisture.

Discussion. Dr. L. Ashley Faught was always sorry to hear

these teeth called dead teeth. They are pulpless teeth, but in a state of semi-vitality; they are not dead.

Dr. W. A. Montell asked Dr. Faught if he would describe a tooth as pulpless when it contained a putrescent pulp.

Dr. Faught said what we describe as the pulp of a tooth is a vital organ; when it is putrescent it is not the pulp.

Dr. T. S. Waters spoke of the value of an electric lamp in diagnosing a dead pulp. When the light is made to pass through a tooth with a dead pulp the tooth will appear opaque; if the pulp is alive it will be clear. Reflecting light from a mirror outside the mouth upon a mirror inside, and from this back through the tooth, will answer almost as well as an electric lamp for the purpose.—*Dental Cosmos, October, 1896.*

ANOTHER SOURCE OF INFECTION.—It is well known among oculists that the opera-glasses, which may be hired in most theaters, frequently become the medium for spreading very serious eye diseases.—*Pop. Science News.*

PROGRESS.—"Medical science has made such progress," said the doctor, when speaking of his profession, "that it is almost impossible for anybody to be buried alive now." Then he wondered why everybody laughed.—*Boston Courier.*

AMERICAN DENTISTS NOT WANTED IN GERMANY.—A dentist was recently arrested and fined in Berlin, for displaying upon the door of his office a plate describing him as a doctor of dentistry, with a diploma granted by an American dental college. The court held that it was against the law for him to use a foreign title in practice in Germany.—*Medical Record.*

NEW LOCAL ANESTHETIC.—An excellent local anesthetic, the effect of which lasts about five minutes, is as follows:

Chloroform	10 parts
Ether	15 "
Menthol	1 "

Apply as a spray to the surface, carefully guarding the nostrils from its fumes.—*Zahnarztliches Wochenblatt.*

FOREIGN DENTISTS IN HUNGARY.—It has for a long time been a disputed question whether dentists who have obtained dental diplomas abroad should be permitted to practice in Hungary. Considering that only qualified medical men are allowed to practice dentistry in Hungary, and that there is no special examining board for dentistry in this country, the government has declared that for the future a license granted in another country will be valid only if its possessor is a qualified medical man who acquired his diploma of M.D. in one of those universities which are recognized in Hungary.—*The Lancet.*

Letters.

A WRONG RIGHTED.

NEW YORK, November 5, 1896.

To the Editor of the Digest,

DEAR SIR:—Although I am 82 years of age, I am not so old as to be indifferent about my reputation. In the October issue of your journal there appears a letter signed "New York" which does me great injustice. The writer says, in speaking of the discovery of anesthesia: "It looks as if Dr. Colton were trying to claim the whole credit because he 'held the gas-bag.'" This is entirely unfounded, for in all that I have ever said or written I have attributed the honor of the discovery of anesthesia to Horace Wells.

In the Philadelphia *Medical and Surgical Reporter* of January 23, 1864, you will find this from my pen: "No one, I think, who has taken pains to examine the subject, can doubt that the honor of the discovery of anesthesia belongs to the late Horace Wells, of Hartford, Conn." In view of this and many other similar statements, no one can accuse me of trying to claim all the credit, although giving the gas and producing the first condition of anesthesia is quite as important as pulling the tooth.

Now the facts are as follows: Dr. Wells made his discovery at one of my exhibitions of the gas on December 10, 1844. The next day, at the request of Wells, I gave him the gas and Dr. Riggs extracted his tooth. I instructed him (Wells) how to make the gas at his request, and after using it in his dental practice during all of 1845, he went to Europe. During his absence Dr. Morton obtained a patent for the discovery of the anesthetic effects of ether and, after Dr. Wells' death (January 24, 1848), he set up the claim that nitrous oxid gas was *no anesthetic at all.* This became the belief of the whole world for *seventeen* years, from 1845 to June, 1863, when I revived the use of the gas and demonstrated that it *was* an anesthetic. This vindicated the claim of Dr. Wells as the discoverer of anesthesia.

I think I am entitled to some little honor in this revival, for had it not been for it we might not have heard of gas again to this day and Dr. Wells would have been forgotten. Not until after this revival did the medical journals take up the subject and prove that Wells discovered anesthesia. All the honor I have ever claimed

was, that I was the occasion of the discovery and I produced the first anesthetic condition for a surgical operation.

At the great celebration in Philadelphia—the fiftieth anniversary of the discovery—in honor of Horace Wells, on December 11, 1894, Professor Garretson, the chairman, did me the honor to say: "If there had been no Colton there would have been no Wells." In a volume on "Modern Anesthesia," written by the Hon. Truman Smith, United States senator from Connecticut, I find the following: "By far the most prominent of the operators with the element has been and is Dr. G. Q. Colton. Indeed, to this gentleman alone are we indebted for its introduction into practice after a suspension of many years, and for making its virtue and efficiency very generally known throughout the country. In this he has not only subserved in a high degree the cause of humanity, but he has placed the claims of Dr. Wells as the discoverer of the principle, and as a successful practitioner of modern anesthesia, on a basis which cannot be shaken. His efforts have been characterized with matchless vigor and perseverance, and he is entitled to the more honor for ascribing, as he uniformly has, all the merits of this great discovery to Dr. Wells, claiming only for himself the credit of reviving and then vindicating the practice of that unfortunate character."

Yours etc., G. Q. COLTON.

NEW YORK LETTER.

NEW YORK, November 20, 1896.

To the Editor of the Digest,

MR. EDITOR:—We have seen a very worthy compendium of historical facts by Dr. James McManus, of Hartford, Conn. The number is limited to 200. He has evidently given much labor to the work, and the facts concerning the history of the discovery of anesthesia are very wholesome and assuring. We note several things confirming what we read in our paper before the California State Dental Association in 1895; facts which have not before been given to the profession. It is remarkable also, as shown by Dr. McManus, how many dentists, of more or less note, have been identified with the State of Connecticut, either by nativity or practice.

There is fair prospect of a lively time in editorials—four of them already in the field and speaking sharply. We would like to be an

editor just long enough to reveal some facts which have only been hinted at.

Politics, yes, the woods are full of them, and we cannot predict any helpful change for the better. Nothing but the changed morals of mankind can possibly bring about any improvement, and this is not possible, for there is nothing in the Adamic nature with which to begin. A life that has in it no destructiveness must originate from the source which is indestructible. The tendency of man's nature is selfish; the pendulum will continue to swing from side to side, but the golden mean between cannot be obtained by man. Let everyone read the *International's* editorials on dental legislation; more politics. We smile to think how innocently our friend Barrett came into the presidential chair of the American.

The *New York Journal*, a Bryan organ, now comes out with a full length portrait of Mark Hanna and calls him "the smartest political manager of the world." We would like to publish a portrait of our "Mark Hanna" and give him the same title, then after the January meeting of the N. Y. Odontological Society all who are fortunate enough to be present will cordially echo, "So say we all of us." There is going to be more histology to the "acher" than has ever been seen in New York, and the Odontos are to have the credit. Demonstration settles it.

There are many dentists who would like to see their figures full length and billed just what they are. Our greatest diplomat; who doesn't know who he is? Our richest dentist; all would like to know who he is. Our greatest inventor; all know where he lives. Our best looking member; where shall we find him? Our best writer; we will all see him soon, and our most learned microscopist. We must not forget one man who can put railroad magnates in his pocket and run the train himself. This is an age which is doing such things, and a dental journal which would follow suit might make a hit.

Disturbed Dentition, not the cause of the "Massacre of the Innocents," was before the First District Society at the November meeting, which was one of unusual interest. Two medical gentlemen ably presented the subject. "Malnutrition" is coming to the front as the first cause. We wonder if men think what brought about the malnutrition. Dr. M. L. Rhein is making some pertinent remarks; he gave his best talk before the society on this subject. Listen! The

Bridge Patent Defeated. Now hold up Dr. Crouse's arms financially. The recent meeting and clinic of the Odontological were of such interest that they merit an extra notice. Dr. Bonwill demonstrated his method of placing amalgam, a method that is emphasized by Mr. Tomes, of London, as worthy of marked attention by our whole profession. Dr. Gardiner's exhibition of his delicate and exquisite method of placing heavy rolled gold with the electric mallet was extremely gratifying to all lovers of humane operating—not too often manifested.

Dr. Cryer, Oral Surgeon from the Philadelphia Dental College, was present and showed with pride his perfected surgical engine. Although there was a little bringing in of previous introduction of the value of the dental engine as applied to major operations in surgery, yet our beloved Garretson gave all credit to Dr. Bonwill. Dr. Cryer performed several operations on the cadaver after his paper in the evening session, and these, together with his engine, won the admiration of several of the "Greater New York" surgeons—Prof Weir and others.

Let us be a little more careful over our contributions to surgery and see that they are put on record in the preserved archives at Washington. Cordially, NEW YORK.

A SPECIALIST.—The Wife: "Isn't that your eye doctor?" The Husband: "I thought so until he sent in his bill. He's a skin specialist."—*Harper's Weekly.*

SCURVY.—Dr. Cheney says that a "black eye" coming on in an infant without traumatism, and perhaps repeated several times, can rarely be due to anything else but scurvy.—*Medical News*, February 29, 1896.

A NEW INFALLIBLE TOOTHACHE CURE.—A philanthropic correspondent to a contemporary North of the Tweed can no longer keep his panacea locked up in his own bosom, as he has never known it to fail. For the benefit of humanity he discloses the remedy. It is whisky. We have often heard of sufferers drowning their sorrow in the flowing bowl, and we frequently see the condition of their gums after severe local application of this ardent spirit, but it is in neither of these ways that the real efficacy lies. The *modus operandi* is to "take a teaspoonful of whisky and put the nostril on the affected side of the face into the whisky, pressing with the finger the other nostril; then strongly sniff up the whisky when the pain instantly ceases." We have heard an outward application of this comforting cordial stigmatized as "An awfu' waste of the Lord's mercies," but we suppose that toothache would even justify this, and after all it is only a teaspoonful.—*Brit. Jour. Dent. Sc.*

The Dental Digest.

PUBLISHED THE

TWENTY-EIGHTH DAY OF EVERY MONTH.

Editorial.

SHALL THE PROTECTIVE ASSOCIATION BE ABANDONED?

Before this question is answered, let the dental profession recall to memory our condition before the dentists were banded together in this association. Go back to the time when we were annoyed by threats, suits, and communications little less than blackmail from patent claimants. Let the older members go back still farther, when the Goodyear Dental Vulcanite Company got a decision in their favor in the Supreme Court of the United States on the Cummings patent, and then everyone who had been using vulcanite was asked "to come up to the captain's office and settle" for past infringements, and to take out a license for the future. Then imagine what our condition would have been for the last eight years and where we would be at this time, having to pay $500,000 to $1,000,000 each year. Instead of which the profession up to this time has been saved, at a low estimate, $5,000,000.

There is only one feature to be regretted when we think of our victory, and that is, that while the whole profession have enjoyed the benefit, less than one-fifth have, as yet, united with us. Our future will be discussed in the next issue.

FINAL DECISION ON LOW BRIDGE PATENT.

We publish herewith the decision of the United States Circuit Court of Appeals for the Second Circuit, comprising the states of New York, Connecticut and Vermont, dismissing the suit brought to enjoin infringement of the Low bridge patent. In order to fully understand the decision we refer our readers to the April, 1896, number of the DIGEST, where will be found on pages 241-4 the decision of Judge Wheeler, who reversed the former decision in favor of this patent granted in 1881 against Richmond *et al.* The decision here published is a confirmation of the decision

of Judge Wheeler on an appeal of the case to the United States Circuit Court of Appeals by the counsel for the Crown Company.

UNITED STATES CIRCUIT COURT OF APPEALS, SECOND CIRCUIT.

The International Tooth Crown Company, complainant and appellant,

vs.

Allan G. Bennett, respondent and appellee.

This is an appeal from a decree of the United States Circuit Court, Eastern District of New York, dismissing the bill. The suit is brought to enjoin infringement of Letters Patent No. 238,940, issued March 15, 1881, to James E. Low for an improvement in dentistry. Suit was heretofore brought by this complainant in the Southern District of New York on the same patent (with others) against one Richmond; the patent was sustained and infringement found (30 Fed. Rep. 775). In the suit at bar the Circuit Court found a prior use anticipating the patentee's invention, and for that reason dismissed the bill (72 Fed. Rep. 169).

Per Curiam. We do not deem it necessary to add anything to the discussion of the case in the Circuit Court. We concur with the learned judge who tried the cause in the conclusion that the real invention of the patentee was a device (consisting of a band or cap and attachments thereto) for permanently inserting artificial teeth without the use of a plate, and without using the gum as a support to the artificial denture, his device holding the tooth in place with sufficient strength to stand the strain of ordinary mastication by attaching it rigidly to the natural dentition. This invention could be put in practice by rigidly attaching the artificial tooth either to a single natural tooth adjoining it on one side, or to two adjoining natural teeth, one on each side.

The specification of the patent sets forth that:

"A band of gold or other suitable metal is first prepared and accurately fitted around the tooth adjacent to the vacant spaces to be supplied with an artificial tooth. This band is firmly secured in place by cement, which effectually excludes water or the fluids of the mouth and is thus permanently attached to the tooth so that it cannot be removed without an operation directly for that purpose. It is sometimes sufficient to prepare one of the adjacent teeth in this way; but generally it is desirable to prepare the adjacent teeth on each side of the vacant space. It will always be advisable to do so if the vacant place is to be occupied with more than one tooth."

The invention is not a bridge with two abutments. A bridge with abutments existed in the prior art. The contribution which Low's patent undertook to make to the art was an improved kind of abutment, and that improvement would be availed of when the process pointed out in the above quotation was applied to a single tooth. The circumstance that in the first claim the words, "bands" and "permanent teeth" are in the plural is not significant. The language is made broad enough to cover the process generally, and for that reason uses the plural. It claims "the herein-described method of inserting and supporting artificial teeth," but certainly no one would contend that because of the use of the words "artificial *teeth*" in the plural the claim would not be infringed by the insertion of a single tooth. If the patent were valid the

insertion of a single artificial tooth firmly secured to a band of gold accurately fitted and cemented to a natural tooth adjacent to the vacant space to be filled with such artificial tooth, and wholly supported by its attachment to such adjacent natural tooth, without dependence on the gum beneath said artificial tooth would be an infringement. If this were done before the application for the patent it would be an anticipation. The evidence that this is what was done in the case of Mrs. Mertz is to our minds clear and convincing. The date is established beyond a doubt, and it is equally certain that the artificial tooth thus attached was used for years. We concur therefore with the judge who heard the cause in the Circuit Court that the so-called "Beardslee-Mertz 1877 Permanent Bridge" is an anticipation of the device of the patent.

Complainant contends that the Beardslee-Mertz device does not anticipate the second claim of the patent. The specification, referring to the artificial block or tooth, says: "The lower surface adjacent to the gum is cut away at the back, and only descends to contact with the gum along its front edge, so as to prevent the appearance of an open space between the artificial teeth and the gum." The second claim reads as follows:

"An artificial tooth cut away at the back, so as not to present any contact with the gum except along its front lower edge, and supported by rigid attachment to one or more adjoining permanent teeth, substantially as and for the purpose set forth."

Complainant's counsel in argument and brief contends that in the Beardslee-Mertz device the artificial tooth is not cut away at the back. The very device, however, which was worn by Mrs. Mertz for years has been produced and, while it is not cut away in the back as much as are the devices shown in the drawing of the patent, it is manifestly sloped upwards, so as not to bear upon the gums. The extent to which the back is cut away is immaterial so long as the cutting away is sufficient to avoid pressure on the gum and leave the artificial tooth or block supported wholly by attachment to the natural dentition. Complainant's own expert speaking of the Beardslee-Mertz device says:

"If the teeth, that is, the artificial crowns, did not bear upon the gums, and were properly and sufficiently supported by adjacent caps or crowns, and the dates were early enough, I suppose they would meet that portion of the second claim of the patent in suit wherein a single natural tooth is used as a support for an adjacent artificial tooth, without bringing the artificial tooth in contact with the gum."

The date is definitely fixed, and the evidence shows that the artificial crown did not bear upon the gum, and was properly and sufficiently supported by the adjacent cap around the crown of the adjacent tooth. Under the construction which must be given to the patent as indicated above, the Beardslee-Mertz device anticipates the second claim as well as the first.

The decree of the Circuit Court is affirmed with costs.

JUDGES LACOMBE AND TOWNSEND.

It will be seen by the decision of Judge Wheeler that the invention was not patentable, as the process was wholly mechanical, and

also that it had been used before it was patented. Judge Wheeler cites two instances of prior use; that of Drs. Day and Beardslee, the former in the State of Michigan and the latter in Pennsylvania. The judge then declared that this testimony was left wholly undisputed and left no doubt as to the correctness of the date, both of which preceded Low's invention. We found, however, several other anticipations which we considered just as conclusive as that of Beardslee and Day. In fact, in the case of Beardslee, another piece of bridge-work had been worn and was produced in court. It was equally as good as that of Beardslee, but these two seemed sufficient proof for the judge to reverse the former decision. Judge Wheeler also declared that "when the method, and not the operating parts, is what is invented, that, of course, is what is to be patented. Here the natural teeth belong to the wearer, and are to be operated upon; they are not made by the inventor to operate and cannot be brought within the patent. The bands were not new in any sense alone, nor were they when combined with the artificial teeth merely, but the mode of attaching the artificial to the natural teeth permanently by the bands might have been, and if so, that was what was invented and what should have been patented."

The attorneys for the complainant made the proposition to abandon the claim where one attachment carrying a dummy was used, and tried to have this stricken from the claim, but the judges of the Circuit Court of Appeals held that there was no difference in the claims, and that the invention was not a bridge with two abutments. "A bridge with abutments existed in the prior art." (This undoubtedly alludes to the Bing bridge patent, the abutments being secured in cavities in the natural teeth.) The other claim which the complainant laid great stress upon was that the tooth should be cut away in the back and not receive any support from the gum, but the instances of prior use, especially the one of Beardsley, did not bear on the gum and was properly and sufficiently supported by caps around the crowns of the adjacent teeth.

In this connection we might mention that the International Tooth Crown Company had more recently secured a patent on a bridge resting upon the gum, undoubtedly with a view of prolonging the time, after the Low bridge patent had expired, in which to compel the profession to pay royalty, the same as in the case of the Goodyear Vulcanite Company, where, after the Goodyear patent expired,

the Cummings patent kept the profession in bondage for many years more. Time will show whether or not those interested intend to push the claim of this last bridge patent.

There is much to be said concerning the amount of work involved in this litigation, the comparatively small sum of money expended etc., but lack of time and space forbids it here. However, all these points will be fully discussed in our next issue.

Book Reviews.

TRANSACTIONS OF THE CALIFORNIA STATE DENTAL ASSOCIATION FOR 1896. Russell H. Cool, president. Published by Miles L. Farland, San Francisco. Pages 136.

* * *

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY FOR 1896. Louis Ottofy, secretary. Published by H. D. Justi & Son, Chicago. Cloth, pages 182.

* * *

RHYMES OF THE STATES. By GARRETT NEWKIRK. Illustrated by Harry Fenn. 96 pages, bound in cloth. New York: The Century Company. 1896.

The dental profession has among its members a goodly number who have developed literary ability in fields outside the technical lines of their profession. The results of their work have been, as a rule, acceptable contributions, and have evinced more than ordinary literary skill. In recent years the tendency upon the part of dentists to outside literary ventures has increased, and is to be commended for the indication which it gives of the desire to combat the narrowing effect upon the mental horizon which constant working in a restricted technical field is sure to bring about when unopposed. Dr. Newkirk's "Rhymes of the States" is a clever and praiseworthy attempt to fix in the mind of the child certain important geographical, historical, and sociological data pertaining to the States of the Union. He has taken advantage of what is now clearly recognized as a psychological principle,—viz., that the vividness of a mental picture is *cæteris paribus* in direct proportion to the intensity of the peripheral stimuli—that is, he has endeavored to fix his data upon the mind by appealing to several sense perceptions together, and has further enhanced the effect by presenting the matter in catchy rhythmical form.—*Cosmos.*

Notices.

PROCEEDINGS OF THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

(Continued from October DIGEST. page 620.)

RECONVENING OF RECESS OF AUGUST 3, 1896.

Tuesday morning, August 4, session called to order by the president at 10:30 a. m.

Roll of states called.

Alabama	T. P. Whitby	Selma
	J. A. Hall	Collinsville
Connecticut	George L. Parmele	Hartford
Delaware	D. M. Hitch	Laurel
District of Columbia	Williams Donnally	Washington
	H. B. Noble	"
	M. F. Finley	"
Georgia	A. G. Bouton	Savannah
Illinois	Lyndall L. Davis	Chicago
	A. W. Harlan	"
Iowa	J. T. Abbott	Manchester
Kansas	A. W. Davis	Holton
Maryland	A. C. McCurdy	Baltimore
Nebraska	George S. Nason	Omaha
New Jersey	F. C. Barlow	Jersey City
	G. Carleton Brown	Elizabeth
	George E. Adams	South Orange
	Charles A. Meeker	Newark
Ohio	F. H. Lyder	Akron
Pennsylvania	J. C. Greene	Westchester
Virginia	J. Hall Moore	Richmond
Wisconsin	Charles C. Chittenden	Madison

Minutes of last session read and approved.

DETAILED REPORT OF THE COMMITTEE ON COLLEGES.

RECOGNIZED COLLEGES.

	Students in Actual Attendance, Session 1895-96.	Totals.	Freshmen.	Juniors.	Seniors.	Graduates.	Special.
1	Baltimore College of Dental Surgery, Baltimore, Md	207	86	76	45	44	
2	Boston Dental College, Boston, Mass.	191	80	67	44	37	
3	Chicago College Dental Surgery, Chicago, Ill	399	154	138	107	107	

4	University of Minnesota, Department of Medicine (College of Dentistry), Minneapolis, Minn	83	38	31	14	14	1
5	Columbian University, Dental Department, Washington, D. C.	57	25	14	18	14	
6	National University, Dental Department, Washington, D. C.	39	14	19	6	6	
7	Northwestern University Dental School, Chicago, Ill	127	60	40	27	24	
8	Southern Medical College, Dental Department, Atlanta, Ga	50	20	24	6	5	
9	University of Tennessee, Dental Department, Nashville, Tenn	54	24	19	11	11	
10	Harvard University, Dental Department, Cambridge, Mass	103	47	36	20	22	
11	Indiana Dental College, Indianapolis, Ind	157	67	47	43	43	
12	Kansas City Dental College, Kansas City, Mo	135	38	47	50	47	
13	Louisville College of Dentistry, Louisville, Ky	141	63	45	33	32	
14	Missouri Dental College, St. Louis, Mo.	101	51	21	29	28	
15	New York College Dentistry, New York City, N. Y	303	91	113	99	74	
16	Northwestern College of Dental Surgery, Chicago, Ill	10	3	4	3	3	
17	Ohio College of Dental Surgery, Cincinnati, Ohio	213	88	77	48	47	
18	Pennsylvania College of Dental Surgery, Philadelphia, Pa	313	109	104	100	96	4
19	Philadelphia Dental College, Philadelphia, Pa	399	153	126	120	116	
20	School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn	18	8	7	3	3	
	(The School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn., becomes Meharry Dental Department of Central Tennessee College.)						
21	University of California, Dental Department, San Francisco, Cal	183	70	55	58	52	
22	University of Iowa, Dental Department, Iowa City, Iowa	210	125	50	35	34	
23	University of Maryland, Dental Department, Baltimore, Md	214	85	78	51	42	
24	University of Michigan, Dental Department, Ann Arbor, Mich	189	67	60	62	58	

25	University of Pennsylvania, Dental Department, Philadelphia, Pa.....	303	115	110	78	74	
26	Vanderbilt University, Dental Department, Nashville, Tenn.....	146	77	38	31	29	3
27	Western Dental College, Kansas City, [Mo.....	202	92	56	54	46	
28	American College of Dental Surgery, Chicago, Ill. (This has become merged into the Northwestern University Dental School, Chicago, Ill.)	400	141	116	143	126	
29	University of Denver, Dental Department, Denver, Colo.....	28	11	9	8	8	
30	Detroit College of Medicine, Department of Dentistry, Detroit, Mich....	70	24	26	20	20	
31	Western Reserve University, Dental Department, Cleveland, Ohio.....	52	20	24	8	7	1
32	University of Buffalo, Dental Department, Buffalo, N. Y.....	176	71	68	37	36	
33	University College of Medicine, Department of Dentistry, Richmond, Va	36	10	13	13	13	
34	Birmingham Dental College, Birmingham, Ala.....	36	21	7	8	6	
35	Cincinnati College of Dental Surgery, Cincinnati, Ohio.....	33	15	10	8	8	
		5,378	2,163	1,775	1,440	1,332	9

Note—Special students include post-graduates and are not included with "totals."

UNRECOGNIZED SCHOOLS.

	Students in Actual Attendance, Session 1895-'96.	Totals.	Freshmen	Juniors.	Seniors.	Graduates.	Special.
1	Atlanta Dental College, Atlanta, Ga..	200	79	69	52	40	
2	Howard University, Dental Department, Washington, D. C.....	11	5	2	4	3	
3	Cleveland University of Medicine and Surgery, Dental Department, Cleveland, Ohio.....	23	6	10	7	6	
4	The New York Dental School, New York City, N. Y.....	14	9	1	4	4	
5	Marion Sims College of Medicine, Dental Department, St. Louis, Mo.	38	17	15	6	6	
6	Tennessee Medical College, Dental Department, Nashville, Tenn.	(No report.)					
7	Columbian Dental College, Chicago, Ill	62	21	8	33	25	
8	German American Dental College, Chicago, Ill.....	18	6	8	4	3	

9	Omaha University, Dental Department, Omaha, Neb.	32	26	3	3	3
10	Milwaukee Medical College and School of Dentistry, Milwaukee, Wis. (This becomes the Milwaukee Medical College, Dental Department)	61	29	25	7	6
11	Tacoma College of Dental Surgery, Tacoma, Wash.	25	16	4	5	3
12	National Homeopathic Medical College, Dental Department, Washington, D. C. (This becomes Washington Homeopathic Medical College, Dental Department)	8	3	2	3	2
13	Baltimore Medical College, Dental Department, Baltimore, Md.	31	22	6	3	3
14	Pittsburgh Dental College, Department of Dentistry, Western University of Pennsylvania, Pittsburgh, Pa. (Newly organized)					
15	Ohio Medical University, Dental Department, Columbus, Ohio.	62	28	21	13	13
16	State University of Colorado, Dental Department, Denver, Colo. (Newly organized)	585	267	174	144	117

Note: The Cincinnati College of Medicine and Surgery, Dental Department, Cincinnati, Ohio, has been discontinued.

The Baltimore Homeopathic School, Dental Department, has ceased to exist.

LIST OF SCHOOLS WHICH HAVE CEASED TO EXIST.

Recognized List, 1893—Minnesota Hospital College, Dental Department, Minneapolis, Minn.; St. Paul Medical College, Dental Department, St. Paul, Minn.

Unrecognized List, 1894—Homeopathic Hospital College, Dental Department, Cleveland, Ohio; United States Dental College, Chicago, Illinois.

Recognized List of 1895—The American College of Dental Surgery, Chicago, Ill.

Unrecognized List of 1895—Cincinnati College of Medicine and Surgery, Dental Department, Cincinnati, Ohio; the Baltimore Homeopathic School, Dental Department, Baltimore, Md.

Thirteen of the twenty on the unrecognized list, before our action altered it this year, are dental departments established in connection with medical colleges. Your attention was called last year to this manifest tendency to create thus what are too often apt to be inefficient dental colleges and reasons then given for the inducements to produce them. The evidence here submitted is only an emphasis as to the necessity of our association placing some restrictions. Your committee would recommend the following resolution:

Resolved, That hereafter all dental departments formed in connection with medical colleges and applying to this association for recognition shall be required to have all the lectures delivered to the dental students in classes separate from the medical students.

The Kansas City Dental College has preferred to us formal charges against the Western Dental College, the papers of which we submit to you for your action.

A fact worthy to be noted is that nearly one-eleventh of those in the senior year, and supposedly presenting for graduation, apparently failed to pass. We consider this proportion too high, as indicating that either there is too much failure to properly prepare, or that the process of weeding out the incompetents was not begun at a sufficiently early period in the three years' course.

We would suggest that a more stringent and specific rule be enacted as to the preliminary education of applicants to the colleges, as not only the lists of questions submitted by certain colleges to your committee, but the examination papers before state boards of graduates from many other institutions show that the preliminary educational feature as now enforced is a disgraceful farce. We would further suggest that the methods of practical instruction in the operative and prosthetic departments be also controlled by some rule or system; as recent graduates before certain boards have shown an absolute lack of knowledge in prosthetics in particular, as witness a series of plates submitted by the New Jersey State Board of Dental Examiners.

In conclusion, your Committee on Colleges, in looking up the official records to ascertain exactly what their powers and duties were, found that no specifications whatever had been made; they would therefore suggest that the duties and powers of said committee be distinctly formulated.

Committee on Colleges, { L. ASHLEY FAUGHT, D.D.S., Chairman. G. CARLETON BROWN, D.D.S.

Secretary read request for recognition from the Dental Department Marion Sims College of Medicine, St. Louis, Mo.

Referred to Committee on Colleges.

Report of the Committee (Drs. Harlan and Faught) on the death of Dr. Magill read and approved.

Whereas, Our former president and friend, Dr. W. E. Magill, has departed this life in the full vigor and usefulness of a busy life, we, the members of the National Association of Dental Examiners, desire to express, in a public manner, our sense of loss in the decease of one who had made for himself a place of honor and responsibility in the great commonwealth of Pennsylvania. We deplore his death as a loss to the state, his fellow-associates and friends; and, be it

Resolved, That a copy of this note be sent to his family and to the Pennsylvania State Board of Dental Examiners, and that a copy be spread on the minutes of this Association.

L. ASHLEY FAUGHT,
A. W. HARLAN.

Committee on Colleges proceeded with their report of consideration of colleges, more particularly of the Atlanta Dental College.

Dr. William Crenshaw, the dean, was called to explain about the lack of preliminary examination. He promised a new issuance of the Annual College Announcements, with rigid instructions to students that they must be prepared for a preliminary examination before being accepted as students of 1897, and then retired.

Dr. Brown spoke of the method of procuring students, meeting students en route and paying 25 per cent commission, and the fact of no preliminary examination; the case of a student expelled from one college, then taken by the "Atlanta" and graduated; of a dental house supplying means financially; and of students from the "Atlanta" not being able to buy from outside dental depots.

It was moved by Dr. Brown that the Atlanta College, not meeting the requirements of the board this year, recognition be refused. Passed.

It was moved that the college be allowed to make a new application. Passed.

Reference as to the ruling of the chairman of the Committee on Colleges as to the number of faculties in a college was answered with a motion by Dr. Brown, that a committee of three be appointed to revise and codify requirements of colleges for recognition by this association, and to remain a permanent committee until discharged. Passed.

Drs. L. A. Faught, Williams Donnally and George L. Parmele were appointed on that committee.

The report of the Committee on Colleges was accepted by the association, on motion of the Secretary.

Drs. Adams and Parmele, Committee on Suggestions in the President's Address, reported that the same should be referred to the Committee on Colleges.

Secretary moved that a committee of five be appointed to incorporate the National Association at Washington, D. C.

After discussion, carried.

President appointed as such committee Drs. H. B. Noble, Washington, D. C.; J. Hall Moore, Richmond, Va.; Charles A. Meeker, Newark, N. J.; L. Ashley Faught, Philadelphia, Pa.; Mark F. Finley, Washington, D. C.

Dr. T. P. Whitby moved that the committee make a pro rata

assessment on the state boards for any expense attending the same. Passed.

It was moved to proceed to the election of officers.

Dr. Abbott was re-elected President.

Dr. H. B. Noble, Vice-President.

Dr. Charles A. Meeker, Secretary and Treasurer.

Dr. T. P. Whitby moved that the association, in its annual reports to the journals, publish the recognized and unrecognized colleges together.

Amended by the President to read: "That where recognized colleges who have surrendered their charters are merged in other institutions that are on the recognized list of this association, the diplomas, when presented to state boards, shall still be considered reputable." Both resolution and amendment carried.

Dr. Barlow moved the Secretary publish in pamphlet form, for distribution among the members, the Proceedings of 1896–7. Passed.

Secretary read new application for recognition in 1897 from the Atlanta Dental College. Referred to the Committee on Colleges.

Resolution presented by Dr. Brown:

Resolved, That colleges recognized by the National Association of Dental Examiners be required to place on their Annual Announcements and Catalogues the fact that they are on the list of colleges recognized by the National Association of Dental Examiners. Passed.

A resolution in reference to the professors in medical colleges teaching to a class of dental students only, was, after discussion by Drs. Donnally, Moore, Parmele, Adams, McCurdy and others, lost.

Adjourned until 3 p. m.

News Summary.

WHOOPING COUGH BACILLUS.—Kourlov has been investigating the saliva of whooping cough patients, and has found in every case and in them alone, a certain special, spore-forming, ciliated amœba, which he suggests may be the cause of the disease.—*Bulletin Medical.*

CREOSOTE possesses undoubted power to relieve the fœtor of the expectoration in foul-smelling cases of bronchiectasis and phthisical cavities. In small doses (one to two minims thrice daily) it promotes appetite and tends to stimulate the powers of digestion. Beyond this it is not found that it modifies in an appreciable manner the ordinary course of phthisis.—*Medical Record.*

ADENOID VEGETATION OF THE NOSE.—Paint with 50 per cent solution of resorcin. Six to ten applications usually prove sufficient.—*Marage.*

INDIAN HAS A TOOTH FILLED.—An Indian who had a tooth filled and another pulled at Waterville, Me., furnished the first instance of a red man patronizing a dentist which had come to the knowledge of a practitioner of thirty years in that place.—*Chicago Tribune.*

TREATMENT OF RED NOSE.—Dr. Lassar (*Dermatologische Zeitschrift*) recommends scarification after various methods of exfoliation have failed. Fifteen to twenty per cent resorcin paste is his favorite agent for producing the exfoliation. A superior method to scarification is acupuncture, done with forty points mounted on a solid disc one centimetre in diameter, worked by an electro-motor and stamping machine like that used in filling teeth; this method leaves only fine scars, and thousands of pricks very light and of desired depth may be made in a few moments. Consecutive treatment is rarely necessary. In rhinophyma, which Dr. Lassar considers as an adenocystic fibroma without epithelial proliferation, he removes the hypertrophied tissue by ablation or decortication, covering the surface with Thiersch grafts, or leaving it under iodoform collodion, which in many cases serves as well.

EUCAIN.—Professor Charteris, of Glasgow University, has been making comparative experiments upon eucain and cocain. Watery solutions of the hydrochlorates of these salts were employed, being injected into guinea pigs. It was found that the toxic dose of eucain per kilo body-weight was 0.09 gram, while that of cocain was 0.068 gram. This proves that the toxic effect of cocain is more powerful than that of eucain as far as guinea-pigs are concerned. The mode of death varied. With the cocain there were more movements, more salivation, more opisthotonos, and more accelerated respirations than with eucain. It was also noticed that the physiological action produced by eucain did not follow nearly so rapidly as that which followed a similar dose of cocain under the same conditions. Hence it was concluded that the action of eucain was slower in onset and less in intensity.—*Brit. Jour. Dent. Sc.*

PHOSPHORUS WORKERS AND LIFE INSURANCE.—A great source of discontent among phosphorus workers in France is the danger attending the manufacturing of matches. It is so detrimental to health that they wished government to grant those who do this work a pension, which was denied. While yet young—say at 25—the operator will lose his teeth, he frequently becomes paralyzed and idiotic, as before mentioned, and in nearly every instance there is experienced some form of ill health. We remember while a student at Bellevue that the late Prof. James R. Wood used to hold up before his class a specimen of the lower jaw which he had taken from a patient who had introduced phosphorus into it by picking a decayed tooth with matches. The consequence was a necrosed jaw. The professor used this instance not only to illustrate the danger of the above practice, but to show that bone would grow again if the periosteum was preserved. In this case the jaw had been reproduced. So far as insurance is concerned, those who make matches or work in phosphorus are not acceptable risks.—*Medical Examiner.*

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"To the mind of the writer this preparation warrants specific mention, inasmuch as it offers the ideal of a dentifrice in that it is at the same time a powerful antiseptic, reasonably detergent, modest in price, pleasant in odor, and exceptionally grateful to mouth and gums, while last, but not least, its use affords a positive protection against foul breath and other conditions peculiar to the mouth that lead to retraction and softening of the gums, staining of enamel, formation of tartar, and decay; it is likewise a reasonably certain guarantee against a number of diseases which gain entrance to the human organism through germs in the mouth and digestive organs." [*Popular Science News*, August, 1896, page 190.]

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